DOCUMENT RESUME

ED 140 945 PS 009 315

AUTHOR	Sutton-Smith, Brian
TITLE	The Enculturation of the Imaginative Processes Between the Ages of Five and Seven Years and Their Effect Upon Classroom Activity. Final Report.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C. Office of Research Grants.
BUREAU NO	BR-3-4015
PUB DATE	Sep 76
GRANT	NE-G-00-3-0133
NOTE	326p.; Filmed from best available copy
EDRS PRICE	MF-$0.83 HC-$18.07 Plus Postage.
DESCRIPTORS	Adjustment (to Environment); Childrens Games; Cognitive Development; Cognitive Processes; Cross Cultural Studies; *Early Childhood Education; *Fantasy; *Imagination; Media Research; *Play; Pretend Play; Research Methodology; *Socialization; *Story Telling

ABSTRACT

This study represents the integration of several smaller studies and articles on how the fantasies of children between age 5 and 7 become structured by the socialization pressures of the media and the school and how this helps or hinders the growth of children's own imaginative processes. Paper 1 is a research review and theoretical overview of the character of play which addresses the relation between imagination and play and the function of play in adaptive potentiation. Papers 2-4 comprise the methodological section in which the kinds of data collection and methodology employed in this study are discussed. The section on results includes papers 5 through 15. Papers 5 and 6 present results of developmental and cross-cultural studies in which universal parameters of development in children's games are identified. Papers 7 through 12 center around systems for analyzing plot structures in children's narratives. In paper 13, results are presented from a study of age-related changes in the interrelationships within and between expressive media. Paper 14 explores developmental and sex differences in the dreams and stories of boys and girls. Paper 15 deals with the effects of media influence on storytelling. A bibliography and appendix are included. (JMB)

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THE ENCULTURATION OF THE IMAGINATIVE PROCESSES BETWEEN THE AGES OF FIVE AND SEVEN YEARS AND THEIR EFFECT UPON CLASSROOM ACTIVITY

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PS 009315

PREFACE

The present study was very much of a co-operative undertaking between the project director and his doctoral and masters students. In the first year we shared the observations in the classrooms and the collection of stories. By the second and third years particular students pursued those aspects of the inquiry that most appealed to them, and the results of their inquiries are presented over their names in the results that follow. We remained throughout an ongoing seminar carried on in a ribald and creative spirit, but with great mutual help and collaboration. Many other students than those listed below were also involved and their names will be found attached to those studies to which they most contributed.

Several of the enclosed studies either have been published or are in press. This includes studies numbers 1, 2, 5, 6, 7, 8, 9, 10, 12. The results of these studies have been dealt with also in papers delivered between 1973 and 1976 at the American Anthropological Association, American Psychological Association, International Sociology of Sport Association, The Association for the Study of Play, the American Folklore Society, the National Association for the Education of Young Children, The Association for the Care of Children in Hospitals, American Medical Association, American Educational Research Association, the International Design Conference, the Olympic Sports Congress, etc. (Details are contained in the final bibliography.)

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FINAL REPORT

PROJECT NO. 3-4015

GRANT NO. NE-G-00-3-0133

THE ENCULTURATION OF THE IMAGINATIVE PROCESSES BETWEEN THE AGES OF FIVE AND SEVEN YEARS AND THEIR EFFECT UPON CLASSROOM ACTIVITY

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September, 1976

The research reported herein was performed pursuant to a grant with the National Institute of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official National Institute of Education position or policy.

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INTRODUCTION

I. Aims

The present study took as its original focus a particular initiation rite which occurs between the ages of four and seven years. At that time, the child emerging from his family with fantasies and feelings largely determined by that source, is subjected to the socialization pressures of media and school. In particular, in this study we were concerned with pressures to adopt the forms of the public imagination as revealed in legend and myth. We wanted to know how the child's private fantasies become structured by public fantasies and how this helps or hinders the growth of his or her own imaginative processes. The problem was a new one and although we hoped to develop techniques for assessing imaginative processes in the child, and techniques for assessing the structured forms of lore that would confront him, and then finally develop techniques for studying the effects of schooling on both of these, our accomplishment has been somewhat more modest. And yet, if we consider that the immense body of information on initiation rites in early adolescence was not the result of any one study, but an accumulation of data over many many decades, we believe we have made a valuable beginning for new work in this area. It was our contention that unless schooling preserves continuity between the child's own imaginative processes and those of the normative culture, then this potential motivational source of growth in school must lie fallow. We assumed that the fate of most minority groups in Westernized schools provided sufficient documentation for this thesis. It was our task to discover in detail some of the processes at work, so that our study might lead to the adoption of more effective schoolroom procedures to manage the transformation from private fantasy to public legend. Obviously this was an undertaking too large for any one project or any single three year period. What is reported here, therefore, as a final report, for this grant period, is at the same time only a progress report in the chief investigator's twenty year search for the understanding of expressive phenomena in the development of the child. These expressive phenomena include play, toys, games, graphics, plastics, movement, music, narrative, improvisation, and film making.

II. Theory

The present work begins with a research review and theoretical overview of the character of play which has been titled The Dialectics of Play. What is presented here is the theoretical section of a book which will have this name and is being published by Verlag Karl Hoffman, Schorndoff (in press). In discussing imaginative processes in the present work, the position is taken that these are only an extension of and an internalization of what is normally known as play. Imagination is play inside the head and it begins to become an increasingly important play form at our age level four to seven years. We, therefore, do not make a great deal of the distinction between play and the imagination in this study. The research readings which accompany the "Dialectics" book in publication are not included in this report except where they are specifically relevant to this undertaking. Central to the argument in The Dialectics of Play is the view that play has both a distinctive structure and a distinctive function. The assertion that play has a dialectical structure will be seen to have strongly influenced the studies on games that are presented here, and to have influenced some of the studies on narrative. The exceptions will be discussed as we proceed. The theory of play's function as adaptive potentiation however, is felt to be relevant to all the processes discussed in this work. It is argued from our review of literature that play and the imagination anticipate future possible behaviors. In the expressive areas novel ideas and organizations of experience are first brought into being or made potential. Subsequently some of these organizations are incorporated into everyday adjustments, so that what was only a potential for adaptation becomes finally a form of adjustment. This theory of adaptive potentiation has important implications for education because it contends that growth of a flexible sought begins in play and imagination. The implication is that if education is to be concerned with the production of innovative behavior, it must begin with the cultivation of play and imagination. These arguments are detailed in the book. They add strength to our view that the period from four to seven years when the imagination becomes increasingly differentiated from overt play, is of critical importance in child development and schooling.

III. Method

Following this theoretical treatment the methodological section deals with kinds of data collection and methodology that have been used in this research. The major study described in this section, however, by L.W. Petersen is a test of the adaptive potentiation theory as well as an examination of the effects of varying kinds of stimulus situations on particular imaginative responses.

IV(A) Results: Games and narrative

The results section of this report deals chiefly with our findings on the nature of structural developments in two expressive phenomena, games and narrative, but some attention is given also to interrelationships between expressive phenomena and to socialization effects. If the imagination potentiates development, and if development is sequential, then it should follow that it is possible to make statements about developmental sequences in various forms of expression. With the exception of work on children's art, the aesthetic literature is minimal on developmental statements about various forms of creative self-expression. This lack is due to a deeply puritanic strain in Western thinking to be found in both Freudian and Piagetian theory according to which fantasy and the imaginative are not formative factors in human development, but are only epiphenomenal in their significance (Sutton-Smith, 1966). It is not possible to assess the development of four to seven year olds, or to relate their developments to various socialization influences however without having first established reliable measures of the expressive phenomena and their developmental course. It is undoubtedly the major accomplishment of present study to have established such reliable measures of development in the area of narrative development and to have shown therefore that play and the imaginative life have their own structured sequence of development. The bulk of this report therefore is devoted to our work with children's imaginative story creations. Although this represents only a minimal amount of what has yet to be done in the area of expressive development, it is a significant accomplishment in itself.

Prior to working with narrative , however, two developmental and cross cultural studies were carried out on children's games in order to seek out universal parameters of development in these phenomena. The results of these studies are presented in two papers by the principal investigator (a) Games of Order and Disorder (b) A Structural Grammar of Games and Sports. The ages covered in these papers and in the following studies of narrative involve a much wider range than four to seven years, but it seemed essential first to establish the larger parameters for these developments in expressive forms before focussing on the specific age level of four to seven years. These papers now make it possible to assess behaviorally the developmental level which a child can maintain in games and compare that with the developmental level that he or she can maintain in narrative. This next step has not yet been taken by these investigators.

(B)

The study of narrative can focus on linguistics, style, tension symbolism or plot (Colby, 1975). The present studies concentrated largely on plot structures. In the pages that follow we present a series of analyses of plot structure. They are as follows: (1) Our first analysis was based on a system developed by the Marandas from the work of Levi Strauss. In this system the child in his plot development between the ages of 5 and 11 years goes through four stages across which his stories are transformed from plots in which no response is made to conflict, through two intermediate stages (of failure and nullification) until a final stage in which the hero overcomes his problem and transforms the original situation permanently. The accompanying article "The importance of the storytaker: an investigation of the imaginative life" Urban Review 1975, 8, 82-95, documents our theory and findings concerning this type of analysis.

Subsequently David Abrams discovered that the same system could be used to develop a structural account of the role of the Trickster in children's stories, and as a result to resolve some of the classic disagreements about the trickster. The trickster is a figure seen in the anthropological literature as either regressive or progressive in significance. What Abrams discovered was that younger children use the the trickster mainly in "regressive" ways, and older children in more "progressive" ways. This contribution of the material of child development to the resolution of problems in the interpretation of culture we have chosen to term genetic folklore. The results of this study are reported in the accompanying article: The development of the trickster figure in children's narrative. The Journal of American Folklore (in press). In an ongoing dissertation Abrams is studying the presence or absence of all the classic folktalke types in our corpus of children's stories. What this study appears to show is that certain limited classical themes such as the hero tale, trickster tale, animal tale and romance are related to age development psycho-sexual conflicts (after Erikson) and may be seen as forms of active imaginative response to those dilemmas. Given Gardiner's (1971) demonstration that story manipulations can be used to assist the development of self concept, the potentiality of a normative account of the way in which normal children proceed in the attempt to organize major conflictive areas of their life has extremely important educational promise. It certainly belies the traditional neglect of spontaneous storytelling in the school curriculum.

(2) Our second analysis, based on the units of action in stories,

rather than the relationships between characters, was pursued by Gilbert Botvin. This type of approach derives from the work of the Russian Folklorist Vladimir Propp. A first schematic account of the structural system developed by Botvin for this project is outlined in the article below, Developmental Structures in Fantasy Narratives, Human Development (in press). An empirical analysis based on Botvin's eight stage theory is presented in the article: The development of structural complexity in children's fantasy narratives, Developmental Psychology (in press), and the massive coding system that was developed by Botvin for this study is presented in the accompanying paper: A syntagmatic approach to children's fantasy narratives. As in the case of the hero and trickster analysis once again there are clearly demonstrated age progressions in the materials analysed. In the present system, however, the analogy is more tightly drawn between this conception of structural analysis and the kind of structural analysis to be found in linguistics. There are interesting and provocative parallels between the two, which should contribute most importantly in future research to our understanding of the relationships between language and cognition. In an ongoing Ph.D. dissertation, Botvin has used a computer program to analyse the constituents of stories (as he has conceptualized them) from a larger sample of subjects than is presented in the accompanying articles.

(3) The third system of analysis that has developed out of this project, has as its basis certain assumptions drawn from Piaget about identity, constancy, reversibility, reciprocity, etc. This system, invented by Daniel Mahony, is still in the developmental stage, but its general character is indicated in the accompanying article: Developmental Structures in Fantasy Narratives. The elements developed to that point were used in the Petersen thesis mentioned above and proved highly reliable in distinguishing between the experimental conditions in a population quite different from that from which it was derived. A second article extending some of these notions by Mahony, The Geography of the Story World, is also included here. The more critical importance of the Mahony system in the present study however, has been its ready applications to more than one expressive medium, a matter to be taken up in the next section.

(C) The Expressive Profile

A major theoretical assumption of this study was that if adequate measures of structural stage could be developed, within each media, then it should be possible to apply these across different medias, so as to draw individual profiles of the interrelationships between the various expressive media. This problem which was enunciated in an earlier work (Sutton-Smith, 1972) was begun under the aegis of an earlier grant in which children's development in improvisation was studied (O.E. 2-9-420032-1021-010). After the termination of that grant, however, work continued on the problem of the expressive profile with a preliminary study of the relationships between improvisation, drawing and storytelling for the same group of children. The results of this study are set forth in the accompanying paper by Amy Miller: The Expressive profile across improvisation, story and art. Although extremely complex and somewhat tentative because of the small subject population involved, these results indicate fairly clearly that the expressive profile varies with age. That is, the interrelationships within and between expressive media change with age. It seems that at the earlier age level of seven years, the different expressive forms are more distinct from each other than they are at the later age level of 12 years. The multiple relationships are so many and so complex however, that in the more recent work within the present grant period we have been content to examine these inter-media relationships across two media at a time. It would seem that considerable pioneer work of this sort will be necessary in order to establish reliable measures, before a return to the multiple variable type analysis which we attempted in our first analysis.

In the accompanying paper: Developmental and sex differences in dreams and stories of boys and girls Marylou Caring explores the interrelationships between reported dreams and stories. Using the Piagetian based Mahony system mentioned above, she did not find differences in developmental level between a child's dreams and stories at the same age level, and she did not find differences between the sexes. However, using an Eriksonian derived scoring system she did find sex differences between dreams at the two age levels with the boys' scores significantly more advanced in Eriksonian crisis stages. While her work in this area of sex differences continues into her ongoing dissertation, the important subsidiary point for the present is that the structural types of analysis mentioned above are more resistent to cultural differences (in this case of a sex role sort) than are measures which directly reflect cultural crisis concerns such as those drived from Erikson. It is tempting to consider that one method of analysis has to do with cognitive structures and the other has to do with social contents. More importantly, the subtle way in which the conceptual system of analysis may interact with the varying expressive media (dream or story) to complicate understanding is highlighted by this finding.

In another ongoing study by Sara Zarum and Dan Mahony in which stories told are compared with the films made from these stories, we have found that the younger children (5-8) years simply cannot manage the relationship, and the story told has only a tenuous relationship to the film that is made, whereas by eleven years the children rather too rigidly tend to follow the story step by step as if the filming process is completely wedded to the narrative they have made previously. Adolescent film makers often prefer to dispense with such controls, allowing their own visual imagery to lead the narrative.

From these few studies we believe there is a goldmine of information to be discovered in this area of cross modal or cross media research. Yet it is clear that as social scientists we will have little grasp of the nature of expressive development in the individual case until we understand these interrelationships.

(D) Socialization

Ultimately of course, having learned how to measure private fantasy, and having watched how it becomes enculturated into public legend (in this case hero narratives and playground games) which we have done in this study in at least a partial way, and having assessed some of the interrelationships between the forms of expression, we seek to know the socialization effects of media, teachers and peers. While this study did not progress far enough to get fully into these latter matters, we did make some steps in this direction.

Below we present two studies of media effect. One by Botvin: The Effect of Media Influence on the Storytelling of First Graders, in which he finds remarkable sex differences in boys' stories are highly influenced by television content and those of girls are not. Again in the earlier article on the Trickster by Abrams, there is included a television study of the effects of Bugs Bunny cartoons on the children's story making. The general conclusion is that at the time (age seven) when this is the children's most preferred cartoon, the cartoon is at a structural level somewhat advanced over that which the children can demonstrate in their own stories. By the time children can show similar plot levels in their own stories (age nine), they are no longer interested in those cartoons. This relationship strongly suggests that a plot modelling effect is being provided by the cartoons, and as in humor research and moral development research, children's preferences are for models on a higher level than the performances of which they themselves are capable. This finding has led us to formulate the relationships discovered in terms of a theory of Initial Education as Caricature, which is presented in the reccommendation section of the present report.

In a dissertation study by Amy Miller entitled: Family Play: the relationship between parent behavior and young children's imaginativeness (Columbia Univ., 1974) it was shown that the way in which parents play with their children has a direct effect on the children's creativity as seen independently in the nursery school. In this study Miller videotaped parents and their children playing together with an assortment of toys. Parents were then scored according to their socialization procedures. The children were assessed independently at the nursery school. While there were many results, one outstanding finding was that parents who joined in with the children's improvisations by improvising themselves, as compared with parents who mainly imparted information, had children who were more creative in their own play. This is a striking finding, and as we show in the work on The Dialectics of Play, quite consistent with an increasing body of literature of this sort, because it suggests that parents or teachers directly socialize children's imagination according to the responses they make to it. Those who respond to imagination by being imaginative encourage the development of creativity. Those who respond to imagination by being knowledgeable, decrease creativity.

While these evidences are slight, putting them all together they give some answer to what usually happens to the private fantasies of children when they arrive at school. These fantasies are modelled and encouraged by television and by story plots where these are available, and they are encouraged by a situation where they are asked to make up stories (as we asked them), but where adults do not participate with stories (therefore with improvisation), or call attention to other more realistic aspects of reality (as apparently women tend to more than men), then fantasy and its development is discouraged and other things are substituted for it.

II. RESEARCH REVIEW AND THEORY OF THE IMAGINATIVE FUNCTION

Paper #1. The Dialectics of Play

Brian Sutton-Smith

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Conclusion and Implications

Introduction

It is a major assumption of this work that we are in a time of great historical change in our attitude towards play (the imagination), games and sports. This new focus requires us to differentiate more carefully the kinds of activities that we wish to call play or imagination from those that we do not. It requires a more subtle understanding of the interrelationships between play and the rest of life and of the variations within play itself. According to Victor Turner, in tribal cultures play was often sacred and also obligatory (1974). In industrial civilizations it became optional and profane. This was a striking change. The question this work asks is: where is play now in our value system? A theory of play is an argument about how to behave. And its correct interpretation has striking implications for the running of schools and societies. It makes a difference whether we think play is a rest from work, an interference with work, a place for creative thought, or whether it is sacred or profane, optional or obligatory. Does it merely prepare children for society as it is, or does it get them ready for society as it might become?

The title of this work needs some explanation. The word "dialectic" is used to express the view that play is best understood in terms of conflict. In this work play is regarded as a way in which conflicts are managed. Seeing play as a peculiar synthesis of conflicts is a dialectical way of thinking about it. The present account includes an attempt to see play as an intrinsically motivated behavior which can be described in parallel neurological and phenomenological terms. Play is seen as a human mechanism present at or soon after birth, which permits the subject to reduce the unmanageable tensions of ordinary experience to manageable levels. It has subtle relationships both with immediately prior experience, and with the more general rise and fall of tension to which the person is subjected. In addition it creates effects which in turn have an impact upon the future adjustments both of the individual and the society.

In order to bring out these multiple relationships the present work is organized in terms of a preliminary section on the *antecedents* of play (I) which has to do with issues of extrinsic causation; a section on the *structure* of play which has to do with the intrinsic motivations for play (II): and a section on *functions* which has to do with play outcomes (III).

I. The Antecedents of Play

This section focuses upon the nature of the necessary preconditions for play to occur. It is assumed that some circumstances may be required to support play, even though these conditions do not actually cause it to occur: they are necessary but not sufficient. Evidence of these antecedent conditions is derived from research in animal psychology, child psychology and anthropology. The biological and psychological studies refer mainly to play, whereas those in anthropology are more often about games.

A. Biological Antecedents

Although this work is concerned primarily with psychological and anthropological issues in the study of play, some mention must be made of the increasing body of work on the biological antecedents of play. Students of animal behavior (comparative psychologists and ethologists) make it clear that diverse species show differences in their amounts of play, and that certain general conditions underlie the amounts of playfulness which we find (Aldis, 1975). The anthrolpologist Peter Reynolds has spoken of these conditions as the "flexibility complex". He says, "There is reason to believe that the history of man consists largely of a progressive phylogenetic elaboration of the flexibility complex." (Reynolds, 1972) He includes in this complex an increased delay in maturation, a condition of semi-domestication and the dependence of the infant on the parents for caretaking. To these he adds the capacity for observational learning, imitation, exploration and the development of play group subcultures with institutions of their own. In a number of articles Jerome Bruner has spoken on the same general set of conditions, but with a greater emphasis on the functional value for skill acquisition of the particular conditions surrounding play. He says, for example, "There is a well known rule in the psychology of learning, the Yerkes-Dodson Law, that states that the more complex a skill is, the lower the optimum level of motivation required to learn it. That is, too much motivation arousal can interfere with learning. By de-emphasizing the importance of the goal, play may serve to reduce excessive drive and thus enable young animals and children to learn more easily the skills they will need when they are older." (1975, p.82) Elsewhere he speaks of play as a program of variation, and points out that even animals, when provided with caretaking, increase innovation (1972). Therapeutic work with the disabled, disturbed and deficient child also indicates that only when the child is reassured that he is protected and safe does he attempt to reach out and express himself freely in play behaviors (Reilly, 1974). Safety, protection, security and trust seem to be as important to animals as they are to humans. This thesis is supported by Mary Main's demonstration that secure babies, as compared with the insecure, explore more intensively and with longer duration: they also smile and laugh and play more willingly with their playmates (1975). Obviously as individuals mature and their playing and gaming capacities strengthen and become internalized, the need for secure external circumstances may be considerably reduced. Studies in humor, for example, indicate that it is the more secure individual who is able to use humor for anxiety reduction in a stressful situation (Goldstein & McGhee, 1972). There are common reports of soldiers at play on the eve of the battle. Extremes of motivation (starvation, the midst of battle) may still preclude play, but for some adults play is no longer the tentative competence it was in the early years. The conditions of audience behavior under which some modern sports such as soccer are played, show the extent to which adults can go in maintaining their play under quite severe circumstances.

From our point of view, this issue of the relationship between the safety that play can provide, and the "danger" that it can then afford to simulate, is a critical one. Any understanding of play must seek to illuminate how it is that a player, secure in the circumstances of his play, then feels able to reach out to simulate those areas of his life which he has been least able to master.

B. Cultural Antecedents

Although it is clear in the ethnological data that play usually occurs first in the vicinity of the mother, later with other infants, then with peers and juveniles, there has been no systematic study of the particular kinds of protections that each of these relationships provide nor of the implications that each has for the kind and nature of play which ensues. One would assume some setting of boundaries in each case to ensure safety which would then be followed by specific patterns of stimulation. There is certainly abundant anecdotal evidence, both on the primate and human level, of differences between mother-infant play, toddler play, and the play of peer groups or juveniles (Reading #2: Play, Games and Controls).

Typically the investigator has been content to show that there is, in fact, some global relationship between play and other cultural variables. In significant association with play we find included cultural customs, cultural complexity, cultural differentiation, social class, economic or adaptive strategy, family structure, sex role value, child rearing practices, etc. We will deal with some examples of these, keeping in mind that the demonstration of a correlation between the variable and play may justify the view that play is "functional" to the culture in some way, but otherwise tells us very little about the relationship. We may assume either that these variables truly antecede play and are necessary to it, or that these variables and play are implicated in some other pattern of variables which is not determined by this analysis. By and large the research on cultural antecedents has focussed on games and sports.

a. customs

Historically, the favorite cultural explanation for games was their genesis in ritual occasions. It was argued that the game came into being because it fulfilled a religious or magical function. Thus Simri, after an exhaustive survey of the evidence, came to the conclusion that ball games were originated in most cases as a part of fertility cults (1966). The passing of the ball back and forth he said, signified a tension between man and the powers of nature. Unfortunately for this kind of explanation, there are too many ball games that seem to thrive without this particular set of circumstances. This takes nothing away from the possibility that games of a given sort were used on such ritual occasions, but it does limit the persuasiveness of that type of argument. In his survey of North American tribes, Salter found games to be associated with various rituals, such as death, weather, sickness and fertility (1972). Some games were restricted to one ritual, some served for several. Considerable differences in usage between tribes were also observed. In general he concluded that it was the manner of playing the game rather than the outcome that was believed by the people themselves to have the greatest "spiritual" effect. Games of physical skill and strategy were more often found in these ritual contexts than were games of chance. A more illuminating survey, also by Salter, of records of Australian aboriginal games, showed that out of 94 games the associations with cultural domains were as follows (1967):

Economic pursuits:	29
Social interaction:	22
Political activity:	13
Cultural identification:	13
Domestic aspects:	9
Ceremonial rituals:	8

While there is nothing final about Salter's classifications there can be little argument with the major outcome: that games as such can be associated with almost any cultural institution or social purpose. Surveys of the games of Melanesia (Lansley, 1968) and Polynesia (Jones, 1967) have led to similar findings. Even when any particular game or sport is studied, as for example, Frederickson's examination of wrestling in various cultures, a similar result follows (1960). In some cultures she found wrestling used as a legal and judicial mechanism for settling the boundaries of rice fields, elsewhere as a part of puberty rites, as a means of selecting a mate, as a demonstration of prestige and power and finally, in ritual context, as a means of ensuring a successful harvest. Other general surveys of the function of games in culture also add up to the view that games and sports are multi-functional and may be found in association with a wide variety of antecedent circumstances (Dunlap, 1951; Damm, 1970). While it is probable that there are some limits to the lability of games and sports, the available evidence provides us with no surety as to what these limits are. All we can say is that they may be found in association with many cultural situations and perform many diverse functions and that, therefore, their explanation cannot be reduced to an account of associated customs.

b. cultural complexity

To date the most satisfactory empirical correlations between games and culture have been established with indices of cultural complexity. Thus Roberts and co-workers in a series of cross-cultural studies involving hundreds of tribal cultures discovered a relationship between the number of types of games in a culture and other measures of complexity in that culture (Roberts, Arth and Bush, 1959; Roberts and Sutton-Smith, 1962; Roberts, Sutton-Smith and Kendon, 1963; Roberts and Sutton-Smith, 1966; Barry and Roberts, 1972). In these papers a game was defined as a "recreational activity characterized by: (1) organized play, (2) competition, (3) two or more sides, (4) criteria for determining the winner, and (5) agreed upon rules." (Roberts, Arth and Bush, 1959, p. 597). Three types of games were dealt with, those of physical skill, chance and strategy. Games of physical skill were defined as those in which the outcomes are determined by the player's motor activities (marathon races, darts, etc); games of chance were those in which the outcome is determined by a guess or some external artefact such as dice or wheel (bingo, roulette); games of strategy were those in which the outcome is determined by rational choices (checkers, chess, go, etc.). The games with which most of us are familar are mixtures of these elements. Thus, football involves physical skill and strategy, and poker involves chance and strategy. By and large inquiry was restricted to the pure types of games alone. It was shown that fewer of these game types existed in the more simple cultures. In a new study, Roberts and Barry (1975) have compared cultures which had games of physical skill only, cultures with games of physical skill and chance and cultures with games of physical skill, chance and strategy. This they view as a Guttman scale type progression varying from cultures with one type of game to cultures with three types of games. They say: "There are some cultures on record in which no such games are reported but there is considerable doubt about the validity of these records which may well derive from inadequate ethnographic coverage. The reports of those few cultures that are said to have strategy or chance or both but not physical skill are of doubtful validity. Physical skill is so pervasive in world cultures that its absence is suspicious. There are, however, cultures with games on physical skill and strategy without games of chance." These types are not rare but they were omitted from the current Roberts and Barry comparison, because they did not "appear to fall into the developmental sequence leading to the game array of contemporary American society." (1975, p.4) Of Murdock's standard world sample of 186 cultures, 96 fell into these three categories. Thirty eight had physical skill only, 40 possessed skill and chance and 18 had skill, chance and strategy. When the presence or absence of these three types was compared with Murdock and Provost's ten indicators of cultural complexity (1973) all associations were positive. The indicators of complexity include, in order of the power of the relationship: land transport, social stratification, level of political integration, technological specialization, writing and records, money, urbanization, agriculture, density of population and fixity of residence.

Roberts and Sutton-Smith advance a series of related arguments about child rearing to support the view that elements of cultural complexity are mediated through child training practices (1962) and these arguments are dealt with in the two readings, "Towards an Anthropology of Play" and "Play, Games and Controls" below.

In a reconsideration of the earlier game and complexity data Ball argued that the relationships between games and cultural variables could be handled in a statistically more sophisticated manner by weighting the complexity of each form of game and game combination (chance with strategy, physical skill with chance, etc.), rather than simply comparing the absence or presence of the various basic types (1972). Using this ordinal technique he discovered higher relationships between game complexity and variables involving social organization (social class, political integration and size of community), than variables involving economic-technological complexity, although as he points out, it is not actually easy to differentiate the two. Still his data is important in the light of the classic controversy between those who interpret games in economic terms and those who find their basis in social behavior (Damm, 1970).

In a subsequent study Ball developed a new scale of gaming based not on game complexity, but on the degree of risk involved in the game (1974). In this scale games of skill and strategy are at the highest end of the scale and games of chance at the lowest end. He calls this a game control scale, the general idea being that at the highest end the players exercise more control over risk and at the lowest more acceptance of the risk involved. His notion of game control is very much like that to be found in the large literature on "locus of control" studies in psychology. What is interesting is that, although the same units of games are used in both the scales, the results are quite different. What is most noticeable in Ball's results is that once again the game complexity scale covaries with measures of social complexity. But now, the game control scale covaries with economic measures. Ball argues that the game control scale varies negatively with the more fatalistic activities of hunting, fishing and gathering where success depends upon climate, nature, luck, etc., and it varies directly with the more manipulative intervention practices of animal husbandry and agriculture where efforts are made to conquer and control the vicissitudes of the environment (1974, p. 176). What Ball proposes is that there is truth to the original Roberts thesis that games are expressive models of the societies in which they are found. Thus social or structural complexity is indeed related to game complexity. But in addition to that, games are an even more powerful expression of attitude towards fate or towards risk, because there are more and stronger relationships with the game control scale than with the game complexity scale.

Ball argues, that what is important about the relationship of games to economics, is not the structure of the organization (fishing, occupational specialization, etc.) but the attitude of rationality and control that is associated with it. Not surprisingly games as expressive models are capable of modelling both this aspect of the economic system as well as its sheer structural complexity.

There are many other evidences of relationships between cultural complexity and the character of games. Most of these are anecdotal, or ethnographic and although they support the general proposition that games parallel society, they do not really explicate the relationship in any definitive way. Thus Hopkins pursuing sport-culture propositions advanced by Luschen (1967) and Allard (1967) found that Amish children living in a simple society of "mechanical solidarity" did in fact show a preference for games with low role interdependence (tagging, etc.) as compared with comparable aged public school children who were into games of greater role interdependence (baseball, etc.) (1969). These findings closely parallel contrasts that have been made over the years between the games of the social classes in Western Culture, with the lower socio-economic orders spending more time with the simpler games (tag games) and the higher order more time with the complex games (team games). (Sutton-Smith, 1969) It is possible to argue that the character of the former games which rotate around the doings of central person (the tagger) parallel the more authoritarian nature of family life in the lower socio-economic orders, and the character of the latter (team games) reflect the more egalitarian, collaborative and competitive nature of life in the business and professional worlds. But it would also be possible to argue skeptically, that the lower classes are merely exemplifying historical lag as they catch up with the recreations of the more prosperous. Renson has shown, for example, in a longitudinal Belgium study, that there is a developmental lag for some recreations with boys of the lower socio-economic groups acquiring an interest in them several years later than the boys of the higher socio-economic group (1975). On the otherhand, Renson has also shown substantial differences in his Belgium study between the sports preferences of adults of upper and lower classes (1976). His highest upper status groups tended to focus on individualistic sports like skiing, golf, tennis and fencing, gliding and sailing. His upper middle class group was differentiated by its concern for outdoor nature sports like rowing, canoeing, horseback riding, climbing, caving, skating, hunting and scuba diving. His lower middle class sports emphasized balls, nets and targets, basketball, korfball, volleyball, table tennis, badminton, archery, shooting. His lower class sports involved much bodily contact and rough team games, such as judo, boxing, wrestling, football, but also included gymnastics, calisthenics, track and field. We have here what appears to be an inverted order of historical and social progression, with the lower class sports representing the older more general and more primitive concerns, and with the upper class sports representing generally the more recent or at least the less accessible activities. Renson's two studies, however, indicate the necessity of "developmental" studies of sports interests, as these may be a function partly of age level and partly of social class.

Our belief that the family of origin and its methods of training has something intrinsic to do with game complexity is buttressed by other studies. Thus Lever and Warner have shown that many of the classic sex differences in play and games (Sutton-Smith and Rosenberg, 1961; 1963) boil down most simply to a difference in their level of complexity, when complexity is analyzed in terms of formal organization, that is, in terms of role differentiation, interdependence between the players, size of the play group, degree of competition and explicitness of goals, number and specificity of rules and degree of team formation (1975). On all these counts boys' games are more complex than those of girls', just as the higher social classes' games are more complex than the lower social classes' games, and the public school American games more complex than those of the Amish. Given what we know about the differential socialization of males and females (Maccoby, 1975) and the differential socialization across the social classes (Bronfenbrenner, 1959) it is hard not to believe that these game differences are mediated in some way by child rearing practices. Perhaps the simplest thesis of all would be that when children are inducted early into the world of adult work, (because they are of lower socio-economic status or they are girls) they simply do not have the opportunity nor incentive to develop through games. That is putting aside momentarily the question of what the meaning is of the parallel between game structure and cultural structure, perhaps one type of socialization simply prevents development in play (which means it prevents development in play and game complexity). If we examine the six culture studies of the Whitings et al. there is support for this conclusion (1975). This analysis is included in the reading "Towards an Anthropology of Play" which follows. Our point at the moment is quite simply that in some cultures and with some segments of complex society (lower socio-economic status and females) complexity of games cannot develop because the children's labor is needed elsewhere.

Still other less parsimonious arguments are possible to explain this relationship between cultural complexity and game complexity and as these have a certain cogency and may indeed contribute to the relationship, they need to be mentioned. First, a more complex culture presents its infants and children with more complex stimuli, and creates in them perhaps a greater need for stimulation. If the need for stimulation is at least in part a learned response, as Berlyne and others have maintained, then this type of causal linkage would seem reasonable (1960). Highly stimulated children seek out and invent more complex games as these can alone meet their needs. Secondly, it can be argued that higher social status groups induce higher achievement motivation in their children as a part of their typical child rearing behavior. They expect higher achievement from their children. These same children thereupon find greater interests in games in which achievement is at stake, namely competitive games, which as it happens are also the more complex games. Thirdly, the games that adults provide for children usually reflect the major modes of the society itself. Aborigines provide their children with spears. Modern parents often provide their children with monopoly or chess. Each parent provides the devices which seem relevant to the larger society. Games parallel society because the adults of the society want them to.

Of course, to all these arguments the skeptic can still reply it is simply a matter of having more time or more money. What seems more probable is that all these variables are antecedents of varying value in explaining the relationship of complexity in culture to complexity in games.

c. child rearing

The record of parallels between forms of cultural or social comlexity and game complexity is quite substantial. At a minimal level of explanation we have suggested that some of the differences cited may reflect only the amount of opportunity available for play by these different groups. Some groups, usually the simpler, are needed in the work force and there is less opportunity for complex play. Traditional female socialization requires the girl to be more concerned with family maintenance and restricts her freedom for outdoor play. Still, throughout the studies cited there is hint of a more direct connection between the cultural structure and the game structure. The Bell "game-control" measure implies that an attitude of readiness for greater risk taking may be engendered in the family of origin. This is consistent with Luschen's finding of relationships between subcultural value orientations (for example of achievement) and interest in sports (1970), and it is consistent with Glassford's explanation of Eskimo games in terms of basic types of economic strategies (1970 a). In comparing three generations of McKenzie Delta Region Eskimoes he found that the older Eskimoes, following their collaborative economic behavior showed a greater interest both in co-operative games and in games of individual self testing, which were of a low order of complexity involving few step sequences. The younger Eskimoes favored more complex, highly competitive games. Glassford states the difference in terms of the game theory contrast between "Maximin" strategy (security before gain) and "Minimax" strategy (gain before security) (1970 b). Other cultures have also been compared in these competitive versus co-operative terms. (Miller, 1973; Thomas, 1975)

We suggested earlier that these value systems as they apply to games might be carried by the character of the family structure, the more authoritarian that structure, the greater the preference for central person (arbitrary power) games. A number of studies of games have pursued that type of parallel (Maccoby, Modiano and Lander, 1964; Zurcher and Meadow, 1967) contrasting in particular the more authoritarian Mexican family with the more egalitarian American one. In all these studies, however, once again we are dealing with implied relationships between the parents' values, child rearing practice and the childrens' play at games, when in fact we are usually correlating only two points on this continuum, often those of the furthest remove. In a recent interview and observational study Watson has attempted to transcend these lacuna by contrasting the different approaches of lower and middle class parents to their boys' playing Little League Baseball (1973). Here the children were playing the same game. What Watson found, however, was that parental values and the nature of the boys' play differed markedly between the groups. The lower class parents showed more involvement in the game, emphasized its value as authority over the boys and the importance of the boys' conformity. The lower class boys emphasized belonging to the group. The lower class boys also developed a much more highly structured and ritualistic game. By contrast, the middle class parent emphasized the learning of co-operation, and the middle class boy, the display of his skill in a competitive setting. One gets a clear contrast between a game used by a middle class boy as an enhancement of personal status and a game used by the lower class boy and parent as a means of collective integration in a community. It is not difficult to believe that it is the latter role that games and sports have performed historically in integrating lower class and immigrant groups into the larger system of cultural values; but that in due course these particular "collective" values have given way to the individualistic ones more characteristic of the middle class achiever. The major importance of this study in the present context, however, is that it shows a consistency between parent value, child value and child practice which is meaningful in terms of the socio-economic status of the parents. It confirms the expectancies which are implicit in most of the studies already cited that children are directly socialized in attitudes relevant to the way in which they play games.

To date, however, the only direct studies of child training and games on a large scale are those carried out by Roberts and Sutton-Smith (1962, 1966) and by Barry and Roberts (1972) and Roberts and Barry (1975). In the earlier studies Roberts and Sutton-Smith focussed on the relationships between the number of types of games (skill, strategy and chance) and achievement training, there being more achievement training where there were more games. They also argued that the particular connections between child training and games suggested that certain child training conflicts were specific to certain games: obedience conflict to games of strategy (1962) and achievement conflict to games of chance (1966). They argued that conflicts induced by child training were symbolized in a buffered way by the games. These symbolizations attracted the player to the game that thus represented his state of experience. In due course through play he made an adjustment to his experience and perhaps learnt skills of relevance for dealing with that conflict in his adult life. The theory had its attractiveness. It was consistent with many years of psychoanalytic experience that patients attempt to deal with their conflicts in their play. It was consistent with the well-known displacement paradigm which says that unbearable tension can sometimes be reduced by displacing affect towards targets other than those originally connected with the tension. Larger tensions are thus mediated by situations that raise smaller and more specific tensions which are manageable.

While the theory may perhaps be correct in some general way, there are reasons for believing it insufficient by itself. It is clear that children if in too great a conflict cannot play. Conflict can only enter into play if it is reduced to some point of tolerance; although that might be what the game does. Again in the Roberts and Sutton-Smith data there were innumerable findings of relationships between child training and games where conflict measures were not clearly involved, although they had been in the original study (1962). Now it is possible that any training may induce conflict. That either rewards or punishments can induce conflict (rather than just the two of them in combination as in the original thesis), being powerless it is possible that young children become worried about their capacity to fulfill any socialization requirement where the pressure is strong enough, whether it is of reward or of punishment. This is possible. It certainly makes sense that the bipolarity of games (their winning and losing) might borrow from very basic conflicts in the large society. Still these possibilities are not proof. It seems indeed that some more general theory is required to explain the origin of play and games than was provided in the original Roberts and Sutton-Smith thesis. We take this up later.

The newer child training and games studies of Barry and Roberts, however, open up quite a new vein of information. Once again they scaled societies in terms of complexity. This time they found that in those societies which were more complex the children received less training in self-reliance, trustworthiness and honesty and more training in responsibility, obedience, self-restraint, competitiveness and aggression. They were also punished more severly. The cultures involved in these judgments are indicated in the following table 1. Within each category the societies are listed in rank order of decreasing degree to which obedience is inculcated in boys shown by the number to the right of the society name. The world sampling area (Murdock and White, 1969) is designated by the number to the left of the society name.

Table 1

1. Physical Skill Only. N = 38

46 RwalaBedouin (9), 107 Makin Gilbertese (8), 118 Saru Ainu (8), 146 Natchez (8), 160 Haitians (8), 2 Kung Bushmen (6), 52 Kon Kama Lapps (6), 91 Aranda (6), 95 Kwoma (6), 97 Lesu (6), 100 Tikopia (6), 113 Atayal (6), 164 Barama Carib (6), 186 Yahgan (6), 68 Lepcha (5), 78 Nicobarese (5), 96 Manus (5), 173 Siriono (5), 175 Trumai (5), 176 Ramcocamecra Timbira (5), 13 Mbuti Pygmies (4), 182 Lengua (4), 77 Semang (3), 179 Shavante (3), 162 Warrau (2), 170 Amahuaca (2), 184 Abipon (2), 61 Toda (-), 79 Andamanese (-), 90 Tiwi (-), 101 Bunlap (-), 105 Marquesans (-), 154 Sierva Popoluca (-), 159 Goajiro (-).

2. Physical Skill and Chance. N = 40

23 Tallensi (8), 93 Kimam (8), 106 Samoans (8), 114 Chekiang Chinese (8), 133 Twana (8), 136 Lake Yokuts (8), 143 Omaha (8), 145 Upper Creek (8), 148 Chiricahua Apache (8), 184 Mapuche Aravcanians (8), 172 Aymara (7), 83 Javanese (6), 121 Reindeer Chukchee (6), 123 Aleut (6), 135 Eastern Pomo (6), 137 Wadadika Paiute (6), 138 Klamath (6), 139 Lower Kutenai (6), 151 Papago (6), 49 Romans (5), 76 Siamese (5), 109 Trukese (5), 125 Montagnais (5), 126 Micmac (5), 131 Masset Haida (5), 132 Bellacoola (5), 140 Gros Ventre (5), 141 Hidatsa (5), 142 Skidi Pawnee (5), 150 Havasupai (5), 129 Kaska (4), 124 Copper Eskimo (3), 127 Northern Saulteaux (3), 128 Slave (3), 111 Palauans (2), 144 Huron (2), 185 Tehuelche (2), 9 Hadza (0), 130 Evak (-), 134 Yurok (-).

3. Physical Skill, Chance and Strategy. N = 18

153 Aztec (10), 171 Inca (10), 21 Wolof (9), 43 Egyptians (9), 20 Mende (8), 28 Azande (8), 50 Spanish Basques (8), 51 Irish (8), 65 Kazak (8), 3 Thonga (6), 18 Fon (6), 47 Turks (6), 58 Basseri (6), 1 Nama Hottentot (5), 73 North Vietnamese (5), 149 Zuni (5), 116 Koreans (-).

From Roberts and Barry, 1975.

One way to read this data is simply to say that in more complex cultures people are less honest and trusting than in simpler societies. Another reading of the same data is simply that in more complex societies more effort must be spent in assessing the motives of other people. Distrust and dishonesty may be associated with learning how to achieve some distance from as well as insight into other people. We have to remember that these characteristics are part of a complex which includes also restraint and obedience as well as industry and responsibility. So these negative characteristics need to be read with care. They may only imply the importance of avoiding gullibility. Children in Western culture usually have a critical socialization in not being gullible between the ages of four and seven years. (Sutton-Smith, 1971). In simpler societies where direct and personal collaboration is often critical for survival there may, in consequence, be a greater emphasis on trust and honesty. Self-reliance is important because survival depends on the physical skills of the individual. In modern society personal physical skill is often irrelevant to survival of a professional, business clerical or political nature.

On the basis of the data presented it seems most probable that there is a chain of mediated relationships between types of social or economic institutions and games played. Parents as members of these institutions convey their own values to children through the forms of child training that are relevant to their own lives in those institutions (obedience, distrust, etc.). These values are then also modelled by the games they teach and approve of in the children's play. Thus strategy games require deception of the opponent and distrust of his moves. They also require considerable restraint, obedience to rules and industrious application of an intellectual sort. Still we must confess the cross cultural study in which all these variables (institutional, parental, child training and method of play) are carefully assessed has not yet appeared.

Perhaps what may be most important in this material both on child rearing and complexity, is that where there is more severity and demand in child training, there is more time invested in games and more complex game structures are developed. Perhaps the key relationship is between some degree of cultural stress and its necessary displacement in games.

C. Psychological Antecedents

The psychological antecedents of play are not different from the biological or anthropological ones mentioned earlier. Both exist within and interact with the sorts of cultural conditions which we have just discussed. What the psychological analysis adds is a more specific focus on particular variables of importance to the instigation of play in the individual player. Recent work in psychology of play, however, has focussed less on the inference of such internal states, as on the observations of the antecedent contingencies for play in parental behavior, stimulus conditions, social conditions and in communication. We therefore take up in turn: child rearing, modelling, stimulus mastery, setting mastery, social influence and play signals.

a. child rearing

The cross cultural data already cited shows that relationships between types of child training and games have been established. Unfortunately the data within modern culture on parent training and child play relationships is less comprehensive. However, a long series of parent-child studies would suggest that such a relationship is probable. We know for example that parents in different cultures handle their children physically in quite different ways and that this seems to have an effect upon how these children subsequently relate to their parents. In general in Western society the child is less physically close to the parents but interacts a greal deal with them on a face to face basis, so that verbal interaction and verbal games are encouraged from the very beginning. Whereas in some tribal societies where the child is carried on the mother's body but has little face to face interaction to her, the children become very skilled at physical movements but less versed in verbal play (Goldberg, 1971). That the relationship to the mother can be critical for play is also suggested by the finding mentioned above of Main, that security with the mother makes a difference to the child's amount of exploratory behavior (1975). In addition, Rubenstein's discovery that children who live in bedrooms with relatively more toys in them show more exploratory interest several years later, strongly suggests that the parents are relevant in raising the stimulus expectancies of their children by their own provision of stimulation for those children as babies (1971).

The most directly relevant studies, however, are perhaps those of Daniel Stern in which films are made of the infant and mother relationships in their early months of life. These studies show an intricate patterning of mother-infant reaction as well as great individual differences in the extent to which mothers interact with their infants (1971). In particular, Stern demonstrated that if the mother wished to keep the infant's attention she needed to engage in novelistic behaviors, by raising her voice and elongating her vowel sounds etc. She needed to "clown" or "play" around in order to keep the baby attending to her. Amusingly John Watson (M.S.) has spoken of the "contingency game", in which parent becomes meaningful to the baby because the parent responds with stimuli to the stimuli put out by the baby as, for example, when the mother repeats the sounds the baby is making. Thus the parent's response because it is associated with the baby's response becomes interesting to the baby and leads to repetitions by the baby of its own initial response. Watson suggests half seriously that parents are important to babies because they play the contingency game.

More recently Miller Cohen has demonstrated with four year old children that the manner of adult play effects the child's own play (1974). Parents were video taped at play with their children. Those who used the sessions to instruct their children ("that is a red car, it has four wheels" etc) had children who were less creative when observed at a nursery school independently of the home setting. Parents who entered into the play and improvised themselves had children who were more creative. This study is consistent with the experimental studies to be quoted later in which it is shown that when adults play with children they can affect the children's creativity in play. In sum, although there are not many studies, they are consistent with expectations derived from the cross cultural studies both of complexity and child training, that the patterns and nature of child play is directly effected by the parental child training practices.

Though as the Stern and Watson research shows, the child himself may evoke the necessary responses from the parent, if the parent is paying attention. It is the parents who try to imitate the infant's sounds, who get drawn into the contingency game, and the parents who try to retain the child's eye regard who become clowns in order to do so. In sum, the setting is ripe, the infant provides the stimuli but the parent has to be willing.

Apart from these rather subtle interactions for which the evidence is as yet relatively minimal, perhaps the most important child rearing antecedent for play in the child is that it should be modelled by the parent or by other siblings, or other children.

b. modelling

Although it has been popular to interpret play as a "projection" of its preconditions (child rearing, stimulus conditions, cultural complexity), such explanations are clearly insufficient. We may suppose that play is at least as universal as language, noting that language itself always implies certain sustaining conditions of either a biological or a social nature, as the cases of deafness and autism indicate. We may suppose that the potentiality for play is universal even though we do not, therefore, have to hold that children everywhere play the same way or even the same games. In the readings below, "Towards an Anthropology of Play", for example, it is argued that there are important cultural differences in ways of playing. There is no one language of play. There is abundant cross-cultural evidence that there are many different patterms of game playing. There is evidence also of the more obvious fact, that within our own culture there are quite different social class as well as individual patterns of play. What needs to be achieved is to investigate these different patterns of play and games and the way in which they enter differentially into their appropriate cultural life. The modes of knowing to be described later, for example, appear to be used with differential preference in different cultures. Cultures in which self-reliance is very important (Australian aboriginal, Amerindian), put a great stress on self-testing though not always on contesting. The children spend great amounts of time in the rehearsal of physical skills. Again cultures in which traditional ways of managing the economy are important emphasize strict imitation. Children's play appears to be meticulously imitative. In Western Society however where achievement through symbolic means has become important, our children are occupied with creative socio-dramas and make believe constructions, as well as competitive victories. We would expect the play in each culture to reflect these preferences for certain modes of knowing over others.

The major implication of these cultural differences is that a greater part of children's play is learned from others. And indeed a host of recent experimentation on the modelling of children's play would support this argument. In a way such a thesis should be obvious except that for so long many have assumed that play and games were universally everywhere the same. Many books have been written with that theme in mind. Unfortunately most of the recent modelling research on play has had as its aim the increase of children's verbal interactions, or their imaginative or fantasizing competences, etc. as assets in normal schooling. There is not really and detailed research on the naturalistic ways in which children model after the play behavior of others. That is, outside the classic study of Piaget on marble playing in which the various steps that children proceed through in their identification with older players is outlined (1948).

In a recent study of the Kpelle, Lancy outlines some of the steps which such modelling can take over time. He says:

> "Make believe play seems to be one step in an alternatively collapsing and expanding process. A child of three spends hours observing a blacksmith at work. A child of four brings his stock down on a rock repeatedly and says he is a blacksmith. A child of eight weaves with his friends elaborate reconstructions of the blacksmith's craft, all in make believe. The child of ten is a blacksmith's helper in reality; he fetches wood for the forge and no more. At twelve he begins learning the actual skills of smithing, adding a new one every few months or so. At eighteen he is a full fledged blacksmith with his own forge. Parallel patterns can be observed for virtually every class of work." (Lancy, 1975)

In this account of Lancy's we get a hint of the timing of the play modelling. There are the years of exploratory observation, then there is exploratory imitation, then there is the play transformation, then there is a real life assistance in a series of cumulative steps. The transition to play modelling seems to have its basis in a regular series of earlier steps in the acquisition of understanding. There may be some principle here. We recollect Parten's classic series of play steps outlined in her articles of the 1930's involved, first observation, solitary play, parallel play and then association and co-operation (1932, 1933). More recently Burton White and others have estimated that approximately 60% of a young child's voluntary time is spent in observational behavior (1974).

It seems probable that there is some lawfulness in the relationship between the proceeding phases of observation, exploratory activity and the transformation into make believe play. The immediately prior mastery behavior may well be the final stimulus for the play. In the above example, beating a stick in imitation of the blacksmith proceeds the make believe expansion into blacksmith life.

In any case, a major explanatory variable to account for the transformation into play, must certainly be the reinforcement obtained from this modelling behavior. Even so, such accounts leave many questions unanswered. There is some sort of a timing sequence between the modelling, the observation, the exploration and the emergence of the child's play transformation (or make believe), followed in some cases by a re-entry into the world of direct adaptation. Theory to handle these more subtle relationships is less adequate. At least we can hypothesize that there may be a systematic relationship between what a child spends time observing and what he later includes in his own play.

c. stimulus mastery

There is considerable consensus that the person who is to play must be at some ease with his environment and his fellows. Sometimes this state of quiescense is conceptualized cognitively as a state of equilibrium, or it is conceptualized in behaviorist terms as a state of stimulus-redundancy, or it is conceptualized in motivational terms as the absence of drive urgency or in neurological terms as a below normal level of arousal (boredom) or in affective terms as a state of relaxation. The problem for the play theory is how these preceding states of quiescence (however, they may be conceptualized) give way to the high states of alertness and arousal that constitute play. (Berlyn, 1960; Ellis, 1974; Hutt, 1966; Millar, 1968; Nunnally and Lemond, 1973; Piaget, 1962). Another problem is to explain the occasional exceptions when those who play become so involved that they ignore the usual biological indicators of stress (hunger, elimination, pain).

In recent years increasing research work has served to establish certain clarifications. First, it is clear that play is a voluntary activity, that is, the subject is doing what he chooses to do and is not compelled or driven by internal or external need to do this. Again not all such voluntary activity is play. There are other voluntary activities, such as exploration, which usually precede play (Elkind, 1972). Further, despite the voluntariness of exploration, the subject's activity during exploration is still very much dictated by the stimulus conditions in the environment, whereas the essence of play is that it is an activity in which the subject imposes his own idea (schema, fantasy, image, response) upon the surrounding circumstances. It has become increasingly clear from recent research that we can describe the phases in a continuum of voluntary activity that begins with exploration and may end with play. These phases are described in a study with three year olds included later in this work under the title of Sex Differences in Play and Power. Other researchers working with children (Hutt, 1971) and primates have observed a similar sequence. Thus Chevalier-Skolnikoff writes:

> "...primates also react to novel objects first with fear then with careful inspection, which is visual, tacile, and olfactory, and sometimes even includes tasting, and finally with experimentation and play, which will give the animals maximal information about the object. Note that the exploratory sequence is similar in the raven and in the primate." (1973, p. 2)

In a survey for the Psychological Corporation, the present author and Mary Savasta (1971) were asked to assess the transitions made by children across four phases in this continuum of voluntary behavior (examination of novel object, repetition of adequate response, combination of adequate responses, transformation into play response). The children were of lower socio-economic status and were participants in an experimental nursery school program for three and four year olds. The school was lavishly provided with every type of equipment and the activities to be studied were block play, sand play, house play, and play on the slide. For these children this environment was as novel as it would be for most of us to step on the moon. And like the first moon astronauts these children at first stepped very carefully in this novel school. They tried out their walking and their running before they cavorted with any playfulness. But whereas the astronauts went through these phases in a few hours, many of these children took weeks and months to move through the same series to a point of some playfulness. Indeed for weeks some of them clung to the toys as if protecting a novel territorial acquisition. Hutt has observed children paralyzed by fear in such novel circumstances although we did not (1971). Other children would advance to the point of discovering an adequate response, but then repeat it ad infinitum. One boy spent days simply filling and emptying a small can of water into the sand. Presumably he was discovering at three years what many children learn in their second year when given the opportunity during bathing and at play in the backyard, namely the properties of volume, water and sand. Such progress across phases as was made in these activities, came largely because of the influence of a few other children already versed in make believe play. For this reason over the period of the school year (nine months) many of these children moved from a dominantly exploratory approach to the materials (first three phases) to a dominantly playful approach. Little or no progress was made on the blocks, which appeared to be outside everyone's experience. Slide play was already at a make believe level from the beginning. Children like to stand on the platform at the top and pretend that they were singers and dancers on television programs. But there was evidence of progress in both the sand play and the house play, where some children came already equipped to play at make believe and after some months of getting little response, influenced the others in the same direction. At first other children had to get to know the sand and the house materials (kitchen, dolls etc.) before they ware able to participate in any make believe with them. Most of the teachers were simply not trained to realize the importance of these transitions in the exploratory-play continuum, so ignored the opportunity that was provided.

They actually tended to interfere with and stop the highest level of play (on the slide) because it was noisy. And they provided no guidance at the lowest level (blocks) because that was kid stuff. Most of these teachers' activities went into introducing discriminations between colors, letters, etc., which are supposed to lead onto "real" learning. It is not widely realized that normally before a child reads he has spent several years in make believe. Reading is itself a form of make believe, and one might suppose this skill needs the more concrete imaginative forms of play as an antecedent form of preparation. Fortunately there are other programs in which teachers by playing themselves with the blocks everyday, have had the desired effect in increasing children's constructive and make believe play with blocks.

The point of this discussion is that children do not generally play in a novel setting or with novel materials. Exploration precedes play (Elkind, 1972). In later childhood and adolescence, those who coach children in sports are all too aware how difficult it is for those children who do not have skill mastery to participate. While most children learn skills through many years of play, there are always children at every age in life who for various reasons have not proceeded through the normative succession of games and sports, and who have as a result many skill deficits. Quite often coaches are themselves unable to do anything about this. But the proper development of skills requires the physical educationist to return to the point at which the child is skilled and proceed from there in group games. For many adolescents, odd as it may appear, their level of competence is that of 6-9 year olds. They can play adequate tagging and chasing games, but they are not yet ready for football and baseball. In the days when children were in charge of their own games, these differences in competence tended to be masked by more heterogeneous group play. What is strongly suggested is that physical education programs should continue to provide these opportunities for more heterogeneous play. Older children should continue to feel permitted to play at games which younger children can also play. This happens most naturally in rural schools where there are so few children they must all play together. There is no reason why the same principle could not be consciously adopted in urban schools. This means that all participants get intense fun from their game play, and with that fun comes the motive to be a participant and to try even the more advanced games when they are also available. But in many cases without continued provision for the more elementary forms of play, we make it impossible for those who are not skilled to enjoy play, to feel safe, or to ever succeed in any way at all.

In this discussion, of course, we are talking of the mastery that develops during play rather than the mastery that is necessary before play. It is an important distinction. The mastery before play is the feeling of being at home in the environment, of knowing the other players, of feeling some reasonable adequacy in one's own competences. Once play begins, however, particularly the play of games and sports, there is continued practice and continued increase in skill mastery, which in their turn become the antecedents for each higher level of play activity. We need, it seems, to think of mastery as a successive series of levels of confidence and skill, each level being a prerequisite for comfortable advance into the higher form of play.

In addition to phases within the continuum of voluntary behavior from exploratoriness to play, this investigator has found it useful to think of *types of voluntary* behavior. These types are Testing, Investigation, Imitation and Construction. These all begin at first as the tentative examination of realistic possibilities with the environment, and only later do they become transformed into playful activity. That is, the phases of play from exploration to playfulness which we have been discussing are to be found within each of these types of play activity.

It is also suggested here that each of these modes of knowing may well be a genetic precursor in childhood of the epistemological models constructed by philosophers to account for the origins of knowledge, along the lines suggested by Stephen Pepper (1961). It is for this reason we have referred to them as modes of *knowing*, not merely as forms of *learning*, the latter concept having a more restricted connotation. Diagrammatically what is being suggested here is the following set of heuristic parallels:

Type of Knowing	Type of Epistemology	Type of Play
Copying	Formism (Plato, Gestalt)	Imitation
Analysis	Causalism (Empiricism, Hume, Learning Theory)	Investigation
Prediction	Pragmatism (Dewey, Instrumentalism)	Testing
Synthesis	Organicism (Hegel, Werner)	Construction

These are matters of some complexity and beyond the limits of the present inquiry. However, they do serve to intimate to the reader the author's concern that we begin to think of play within the normative context of human knowing and not as some slightly irrelevant and anomalous addition. It is within this context of knowing activity that it is being suggested that play is normally preceded by other forms of knowing. Presumably future research will illuminate in more detail the degrees or qualities of mastery that are sufficient for the play transformation to occur. That is, how much voluntary copying, analyzing, predicting or synthesizing is necessary before a playful transformation can occur. The reader should note that throughout we have been adopting the shorthand term "exploration" to refer to these four quite diverse forms of voluntary learning.

d. setting mastery

There is no theoretical difference between saying one must master the physical setting as compared with mastering the stimulus conditions in a setting. This is just a difference in the level of analysis applied. However, we can use this difference to make a further point. Namely, that although the player must first be master of the setting, this does not mean he completely transcends it in his play. Though he may impose his schema or his fantasy on his environment, he nevertheless assimilates that environment into the contents of the fantasy as he proceeds, as is clear in the work of Gump, Schoggen and Redl (1963).

An interesting possible approach to clarifying the apparent contradiction in saying both that the environment influences play and yet play transcends the environment, is to be found in the materials of Beatrice and John Whiting involving a study of children in six cultures (1963). They have shown, first that children in more complex cultures play more and with more complexity which parallels the findings of Roberts and Sutton-Smith mentioned above. But the Whiting study also showed that within the complex groups themselves, there was relatively more play in the group in which the children had the greatest freedom to play. Thus there was more play amonst the Taira of Okinawa than amongst the Rajputs of India although both were complex societies. In Taira the children were much freer to roam about the community and to play with whomsoever they chose, whereas the Rajputs were confined to their backyards and sibling playmates. Details are provided in the paper below: "Towards an Anthropology of Play". This suggests, at least to this reviewer, that the cultural leeway for play is of greater scope in Taira than in Rajput. The idea that there must be leeway for play to develop so that the child is given scope to react back on his cultural circumstances has been suggested by the leading exponent of play analysis, Erik Erikson (1972). All of which may be summed up by saying that culture and ecology make a direct impression on play, but only to the extent that the players are free to make use of it. Just what determines which parts of their culture they make use of is an important research question on which we have little evidence. But it is the same problem we raise later in discussing the structure of play and its relationship to antecedents, where we asked how does the play represent the player's experience and yet at the same time constitute a novel organization of that experience.

Much of this information fits the type of thinking espoused by Berlyne in which the activation of the organism is seen as a function of the degrees and kinds of stimulus novelty (1962). In those terms more complex societies, or more freedom to move around in any society, would bring the subject into contact with more stimuli (more novel stimuli, more complex stimuli, more conflicting stimuli) which would in turn lead to more voluntary response on his part. Efforts have been made to interpret most of children's play in these terms (Ellis, 1971; Reilly, 1974) and more recently to interpret the activities of sportsmen also in terms of their need for such stimulation (Loy and Donelly, 1975). While there is undoubted truth to these interpretations, they fail to distinguish adequately the differences in the continuum mentioned above. Novel stimuli are certainly arousing and affect exploratory activity. Do they also affect playful activity? One suspects that there is a correlation between the two. That the organism aroused to exploratory activity also plays more. But there is certainly no one to one relationship between the two, so other critical variables are apparently involved. An important consequence of the distinction made between exploratory mastery and play is that it may serve to sharpen future observation in cross cultural work (Finley and Layne, 1971). The two forms of activity appear to have diverse adaptive consequences as we will argue in the rest of this work.

e. social influence

The child must be not only master of objects and physical settings, he must also be master of the other players, remembering that we use the word "mastery" here for some unspecified degree of sufficient familiarity and freedom from anxiety in the presence of these players. To do this he must develop techniques of social influence, social accomodation, social management or power tactics, as these things have been variously called. Between the ages of two and seven years there is a great increase in children's skill in these tactics. In our own observation of playground play we have noticed that children must solve the management problems before they can begin to play. It is such a difficult problem for them that they may spend more time in such management issues than in play. Younger children often solve the problem by deferring to an older or bossier child or by adopting a ritual of taking turns. From about the age of six years onwards, simple rule games provide a solution as in ring games and chasing games. The game enables the social life to proceed. Although, as we will show, all such games presuppose in the players some accomodation to orderly procedure, which itself is achieved the hard way in earlier years (See "Games of Order and Disorder" below). As children get older the amount of management needed is in part a function of the complexity of the game they are trying to play. For example, a group of seven to nine year olds observed in a school playground proceeded with little dispute when playing games of chase, but when they attempted to play the team game of Johnny on the Pony their system of management broke down (Sutton-Smith, 1972, p. 191). This is a team game they cannot easily manage at their level of social competence. They do well at that age only with central person games where the outcomes hinge on the actions of one player, as in chasing, dodge ball, etc. We observed that if one child was the boss he picked all the good players for his team and the weak players for the other team. As a result his side crushed the others who soon gave up. Only when two boss kids were present was it possible for two approximately equal teams to emerge. On one occasion when the girls played the boys, division was no problem and a most successful game resulted.

The article *Sex Differences in Power Tactics* explores these issues with younger children. With adolescents and adults, these issues of power are generally conventionalized into rules, referees, coaches, unions, etc., although they also break down and disrupt play on various occasions (Tindall, 1973). Sportmen, like children must have settled the issue of personal and physical power if they are to play the game on its own terms. Often what is called cheating or poor sportsmanship, is an attempt to introduce power tactics (punching, fouling) which are relevant to feelings of general power but not to the game. Games cannot proceed without the knowledge that both sides are relatively balanced in irrelevant brute stength. At least that is an internal check for the players. Most of the time we are more conscious of the external game checks provided by the referees. There is a famous example in the annals of the rugby matches between New Zealand and South Africa, in which the introduction of the heavy weight boxing champion of New Zealand led to a stand off in what had otherwise become a one-sided brutal contest. With latent power acknowledged on both sides, the game was pursued on its own merits. Gabler has shown that most "fouls" in games are game related, not irrelevant aggression (1976).

Of course it is not just that power must be managed before the game begins. These examples show a constant interaction and uneasy balance between power outside of games and power inside of games. A game opens the players to the issues of power at the very same time as it attempts to control them in a patterned manner. The game presents the paradox that it attempts to permit power greater scope than it can normally be allowed in civilized life, by controlling it rigorously. The appetite for games is the appetite for the expression of such meaningful power (to win, chase, escape, etc.), but it is also the temptation to lose control and allow the underlying anarchy to the surface. Civilization is a compromise at a low level of excitement. Little ventured, little gained. Play, games and sports venture much more, and they risk much more. Life in play is much more exciting because greater issues are at stake. Only rigorous controls of all participants including players and audience can permit this heightened meaningfulness to stay within its boundaries. As these are not always present, sports' audiences sometimes argue just as do young children. Unfortunately, they are more powerful than young children and their arguments have more universal and enduring scope.

f. play signals

Knowing how to communicate is one part of knowing one's place in the dominance hierarchy. In an article Boundaries we dealt briefly with these signals and how they are learned (1971). Following the earlier stimulus of Bateson (1956) there has been an increasing amount of work on the different signal systems (or metacommunications) used within different species to indicate that they intend to play with each other. Thus Bekoff has contrasted the play of Beagles, Wolves and Coyotes and found that with the Beagles these play signals are less critical, but with the very hostile Coyotes they are most critical (in press). For the Coyotes there was no play that was not preceded by the correct signal. It is tempting to infer that more hostile humans have to get their signals very much clearer than less hostile ones. Chevalier-Skolnikoff (1973) has contrasted the various types of face used by Macaque, Apes and man to indicate the message "This is play". Paradoxically man sometimes signals he is about to make a joke by looking more serious than usual. A key to play at such high levels of playfulness is a subtle manipulation of these signals (Schwartzman, 1975). Garvey has developed the most systematic account of the signals used by three to five year olds as they orient each other towards the fact that what they are doing is not real but is pretend (1975).

We may summarize the present section on the antecedents of play with the following propositions:

1. An organism that has a long period of delayed maturation is more likely to play than one that does not.

2. An organism which is protected and secure in its surroundings is more likely to explore than one that is not.

3. Security appears to support moderate degrees of arousal which in turn facilitate more complex forms of learning.

4. Organisms with these conditions develop more flexible survival skills.

5. Infants supplied with animate or inanimate stimulation are more likely to seek higher levels of stimulation in future years.

6. Infants themselves elicit playful reactions from those parents who

seek to increase their interaction with the infants (gazing and sounding behaviors). These parents are moved in the direction of novel stimulating behaviors by the infants.

7. Play does not occur in the early years without considerable prior time being spent in exploratory behavior (imitation, exploration of objects, testing, construction).

8. Social play requires familiarity with others and usage of influence techniques.

9. The most important single prerequisite for play is that it be modelled by other persons.

10. Child rearing practices are related to play behavior in many different ways. The most general finding is that the amount of demand and stress in child rearing is reflected in the amount of demand in the games. More demanding child rearing leads to more complex games.

11. Complex cultures have complex games, more complex subcultures have more complex games. The stimulation in the cultural situation appears to be mediated by various agencies such as parents, peers, social class groups, sex role groups.

II. The Structure of Play

It is the major thesis of this work that play and games are best conceptualized within a dialectical framework. It will be argued that the psychological and cultural events discussed in the prior section present the individual with conflicts, which although not reconciled in life, are reconciled within play. This is most obvious within games, where the oppositions of life, between winning and losing, are reconciled in a system which allows all players to win and lose in turns or at least be protected from the real consequences of either. The game transcends the ordinary opposition, and on a new plane offers a new opposition and a reconciliation. In the games the players may continue the struggle, but without the everyday consequences and with the reassurance, that even if they fail on this day, it is possible to play again on another day. So the cyclical character of games is a new and progressive synthesis of the oppositions of everyday life. The major oppositions that enter into the fabric of games are those between order and disorder, approach and avoidance, and success and failure.

When we look at solitary play the relevance of this dialectical model is less obivous. It will be a major focus of this work to show that while games reconcile oppositions between people, play reconciles oppositions within affective life itself. The drama of games is between people. The drama of play is within emotions.

First, however it is necessary to deal with several theories which find the explanation of play within the act of playing itself. These are theories of *intrinsic motivation*. These theories are followed by a consideration of structure as it can be broken down into cognitive, conative and affective components. The role of these elements in a dialectical structure is then explained. It is the assumption here that the discussion of the structural elements, is at the same time also an account of intrinsic motivation. These structures are the elements of the play or games that make them intrinsically rewarding to the players.

A. Intrinsic Motivation

The antecedents for play that have been presented above may be necessary for play to occur but they are not sufficient to explain why it does occur. As most play theorists have asserted, play seems to be self-sustaining. Players play for the game's sake and are not aware of other functions or reasons that we might give for their playing. Their play does indeed seem to be a primary category of mind which proceeds as naturally as language or as thinking. As Huizinga writes in the grand style "The influx of mind breaks down the absolute determinism of the universe," (1949, p.3).

One approach to the problem of intrinsic motivation is to describe as carefully as possible these play characteristics as they are seen by they players. Such a phenomenological approach has been adopted by Csikszentmihalyi after extensive interviews with rock climbers, surgeons, dancers, composers, basketball players and others. He has focussed his survey on what he feels is the essence of all play, although it is not restricted just to play. This is what he terms the flow experience (1974). This experience can be found anywhere but it is the major reason for play enjoyment. It has the following characterisitcs:

1. The player or person in flow experiences a merging of action and awareness. He is fully aware but is not self-conscious. His attention concentrated on, say, serving the ball in tennis, illustrates such a merging. He thinks of nothing else.

2. There is a centering of attention on a limited stimulus field such as the chess board, or the piano.

3. He is not concerned with his self, he loses his ego in this process, being totally absorbed.

4. Yet he is in control of his actions and the environment. There is uncertainty but it is within controllable limits.

5. In addition he gets immediate and unambiguous feedback from his actions.

6. This is voluntary, self chosen, behavior.

While this summary does not do justice to Csikszentmihalyi's work it serves to indicate at least some of the major characteristics that any play theory must take into account. It would certainly make a great difference to our theories of recreation and sports if we evaluated them in terms of their capactities to produce this kind of experience, rather than in terms of the more usual extrinsic criteria (training, money, etc.).

In the past ten years, however, the most influential theory of intrinsic motivation covering behavioral and neurological aspects has been that systematized in the work of Berlyne (1960), and based on his concepts of the nature of arousal or activation in the human nervous system. This approach has already been alluded to above in our account of the child's stimulus mastery prior to play. Berlyne has argued that exploratory behavior is stimulated by moderate degrees of stimulus novelty. When there is such novelty (or incongruity, surprise or complexity) the organism reacts to the novelty in various ways, the effect of which is to reduce the stimulus to some level of familiarity. The novel stimulus exists like a goad to the organism until it is fully assimilated.

There is considerable supportive research for this kind of definition of exploration and curiosity (Nunnally and Lemond, 1973; Ellis, 1973). In more neurological terms the organism would be said to be aroused or made tense by the presence of the novel stimulus, but then would reduce that tension through its own activity towards that stimulus. This type of activity Berlyne termed "specific exploration". In addition, however, he pointed out that there was another kind of activity in which the organism, being bored, that is, not being at its customary level of arousal, itself seeks out stimulation. To this condition, Berlyne gave the term "diversive exploration". He did not choose to call this latter condition play, and indeed it is only similar to some forms of play, though Hutt equates the two (1972). Still there is value in his distinction between specific exploration as an effort to reduce tension or arousal, and diversive exploration as an effort to increase tension or arousal. The first involves arousal reduction, the second involves arousal increments.

In cognitive psychology the most influential theory of intrinsic motivation has been that of Piaget. For Piaget the organism is a knowledge seeking organism regardless of its other appetites. Sometimes it seeks to *accomodate* to external reality (as in specific exploration above), at other times it seeks to *assimilate* reality to its own wishes and fantasies. Again we have the distinction between exploration and play activities.

Still none of these accounts gives us a satisfactory description of the shift across the qualitative borderline between exploration and play and it is to this we must now turn. Furthermore, none of these accounts sufficiently sets the intrinsic motivation in its extrinsic context. As noted in the prior sections there are such great differences in play between different cultures and different individuals, that intrinsic motivation itself, is a necessary but not sufficient condition to account for the diversities we found in the play of humans.

B. Play as Abstraction and Variation

If play is internally motivating it is also some sort of separate structure of experience. This is what Csikszentmihalyi is attempting to describe. In games and sports we can see quite clearly such a structure. There are rules, there is a playing field, there is a time of play, there are sides, outcomes, etc. In children's play the structure may well be there but it somewhat more elusive, because it is much more elementary and we are not sure what to observe. That play is a structuring experience or rule engendering process has been increasingly stressed in recent work (Harre and Secord, 1972; Fein, 1975). As Vygotsky put it many years ago: imagine the case of two girls who are sisters playing a game called "two girls who are sisters" (1972). Now obviously they can play polite sisters or bitchy sisters, but whatever they do it is not merely a replay of their prior experience. It is an abstraction from prior experience. Vygotsky argues that in this abstraction they discover the meaning of what has otherwise merely been experience.

Consider the following examples from Piaget of play in the first year. At two months:

> "It will be remembered that T at two months adopted the habit of throwing his head back to look at familiar things from this new position...(after several days) he seemed to repeat this movement with every increasing enjoyment and ever decreasing interest in the external result; he brought his head back to the upright position and then threw it back again time after time, laughing loudly. In other words, the circular reaction ceased to be 'serious' or instructive, if such expressions can be applied to a baby of less than three months, and became a game."

At four months:

> "L discovered that by kicking her legs she could make the objects on top of her cot move about (3 months). During the first month she followed this up quite seriously making them move with an appearance of intense interest. Subsequently however she (4 to 8 months) never indulged in this activity without a show of great power."

At seven months:

> "...after learning to move an obstacle to gain his objective T began to enjoy this kind of exercise. When several times in succession I put my hand or a piece of cardboard between him and the toy he desired, he reached the stage of momentarily forgetting the toy and pushed aside the obstacle, bursting into laughter."

At ten months:

> "...J put her nose close to her mother's cheek and then pressed it against it, which forced her to breathe much more loudly. This phenomenon at once interested her, but instead of merely repeating it, or varying it so as to investigate it, she quickly complicated it for the fun of it; she drew back an inch or two, screwed up her nose, sniffed and breathed out alternately very hard (as if she was blowing her nose), then again thrust her nose against her mother's cheek, laughing heartily. These actions were repeated at least once a day for a month as a ritual."

(Piaget, 1962, p.91 et sequ.)

In the first three examples above we have the infant's accomodation to a novel stimulus followed by an episode of play. In the final example the infant seems to begin almost immediately with play. Taking the first three examples for discussion first, it seems that after the prior period of mastering the stimulus (looking at the light, making the object move on the cot, and moving the obstacle) there are perhaps two phases to play structure that follows. A part of the prior action is *abstracted* for further action, this action is then repeated *varied or exaggerated*. As these examples show, and as Hutt's experimental studies also show, this sequence can be spread over many weeks and months (1972).

Taking first the issue of *abstraction*: what is abstracted from what? The usual answer to this question is that the child abstracts his instrumental behaviors from their original goals and makes them an end in themselves. Thus: "What had been intelligent adaptation had thus become play, through transfer of interest to the action itself, regardless of its aim." (Piaget, ibid) But even in these examples it is clear that only part of the instrumental actions are used in the play. It is only those actions which can be withdrawn from the context in which they were operating, that are now evoked. Parts of the action like the intent observation of familiar things, or the observation of the objects on the crib, or of the toy behind the obstacle, these are now neglected. What is selected for concentration are those parts of the action over which the infant has newly acquired and immediate control. Which is to say that it is the *subjectively more controllable instrumental actions* which become the focus of the play. Play in these terms is an assertion of subjectivity which is another way of phrasing Piaget's concept of "pure assimilation".

In the more neurological terms of Berlyne the act of abstracting the instrumental behavior might be regarded as a self-administered arousal boost. As such it would function in a way similar to "diversive exploration" in lifting the organism from monotony, but it would be more like specific exploration in being a boost directly related to that prior novelty to which the subject had now accomodated.

Before we leave this question of abstraction, a further point is in order. First because the word abstraction is usually applied to highly symbolic levels its use in this more basic way may cause difficulty. Another choice might be to cast it in more perceptual terms and say simply that we are talking about an active process of figure-ground differentiation whereby some pieces of action are placed in the foreground that were previously in the background of attention. Here the child's *centrations* on a new figure are what is meant. Unlike most thinking about centration, however, where it is seen as an egocentric obstacle to rational thought, in play the centration is itself the child's voluntary form of organization. His play may be subjective, but as it organizes centration as a mode of action, then to that extent the subjectivity takes on a new "objectification". All play and for that matter art can be regarded as ways of taking highly personal "centrations" and rendering them in material things as potentially communicable organizations. Though while the player usually does this only for himself, the artist has a larger audience in mind. Still, however the matter be phrased, it is the major contention here that play is primarily an active formulative process. Its abstracts are subjective organizations of experience which permit the player controllable arousal's and reductions of excitement.

After the abstraction comes the *repetition, variation and exaggeration*. In the first three examples above we might infer fairly safely a quick shift into exaggeration. In the final example the ten month old begins to vary its behavior immediately without the preliminary appearances of sober behavior as in the first three examples. In all four examples there is a great deal of laughter. As laughter has traditionally been regarded as a form of tension reduction or discharge, we may legitimately infer that the immediately prior act of abstraction is an act of arousal. From some points of view this final exaggerative (and perhaps cathartic phase) is the most interesting. It is the kind of phenomena referred to by Miller in his article "Ends, means and galumphing: some leitmotifs of play" (1973) in which he emphasizes the crucial role of exaggerated instrumental behaviors in any definition of play. However, from the fact that older children play for long periods of time quietly and earnestly without such terminal laughter, we must conclude that it does not always have to be present for play to exist. What has to exist we believe is the competence to immediately reduce the self-induced tensions. Galumphing can be itself a way to increase or reduce arousal, depending on whether it is done in a "Frankenstein" and ridiculous manner. It can also be a signal, that this is only play so do not take it seriously. But usually as these examples from Piaget show, the exaggerations are part of the catharsis. Because he controls all subjectively, the player knows he can arouse at will and reduce at will. Variations which are novel are probably meant to be arousing. Variations which are exaggerations of familiar forms are probably meant to be reducing.

In sum, in this analysis of play we discover a two phase structure, which in structural terms is abstraction and variation, and in neurological terms may be arousal and reduction. The child's original subjective abstraction of a behavior from his prior repertoire is an arousal jolt, and then his increasing easy manipulation of that behavior (galumphing or exaggeration) is a cathartic release. Actually the arousal and reduction may also be described in the affective terms of phenomenological experience and we will return to that description in (D) later. In behavioral terms the child seems to have selected something from his immediately prior actions over which he has gained some level of minimal mastery, and then proceeds within that subjective control to manipulate those prior familiar acts in new and sometimes ludicrous ways. Probably, the prior acts are not fully mastered or fully redundant. This would mean that the play action then would help to consolidate those prior actions as Piaget asserts. It would also be consistent with findings in cognitive theory, that action tends to be most arousing when moderate rather than complete control is involved (McGhee, 1974). If this is true, of course, it implies some relationship between the prior mastery and the current play. In Piaget's first three examples the sequence seems to be quite direct, whereas in the fourth example the child seems to be able to initiate a play experience without relationship to any immediate contingent prior experience of an exploratory sort. The explorations of the mother's face have gone on at earlier times so that the child can now proceed directly to assume those experiences in the variational play. Presumably with increasing age the relationship of play to earlier forms of mastery becomes increasingly more remote temporally. This possibility would seem to imply that we must look elsewhere than to the prior experience for the full explanation of the play function. The prior experience whether immediate or remote is certainly relevant to the competences that are exercised in play, but apart from these earliest examples, immediately prior experiences do not seem to supply the major sources of play functioning. Still we must not preclude the possibility that in these very earliest of cases, there is residual tension left over from partly mastered earlier exploration, which is then reduced directly by the ease of the non-difficult, quite subjective manipulation in play. This is an important point because we shall add later the essentially similar arguement that long standing tensions from earlier experience may often provide exactly them same ready arousal which is then dissipated in the familiar play world.

If the two phase structure of play is not then to be accounted for alone by the prior exploratory sober experiences, then what are its sources? Perhaps there is more to be learned from children's social play, than from these potentially fallible even if brilliant observations of solitary play made by Piaget. After all, Piaget was guided in his observations by his notions of intelligence, and intelligence might not itself be a good model for thinking about play. Why not use games as a model for play? At least asa model they are dealing with the same phenomena we are trying to explain. Although we have to admit that what we find in games can be just as subjective as what Piaget finds in intelligence. Still it is worth noting that the two phase model of play drawn above is not very different from customary descriptions of games in which it is said that players proceed on the basis of agreed upon rules to an arousing experience in which they attempt to manipulate familiar actions towards a tension reducing outcome (victory). When games are voluntary, players enter or leave at their will, there are crests and hollows of excitement. There are climaxes and denouements. And even if the final phase brings disappointment rather than triumphant catharsis, there is the knowledge that this is "only" a game, and that play can be resumed on another day. Games have well established means for keeping it safe, though as is well known, when games become absorbed into the larger context of communication which we call sports, then a totally different state of affairs may exist which does not differentiate much of the action from work as normally considered.

Piaget's example of the ten month old increasing its own variability is more typical of infants' social play with their parents at an even earlier age level. In "How to Play with Children" (1974) we have described in detail a succession of parental infant games for the first year in which parents increasingly manipulate excitement and climax in their play with their infants. Most of these games are traditional in Western Culture. The "games" include imitating the infant's noises, baby talk with baby, clowning faces, tickling and manipulating limbs, dancing, singing, putting a finger in the baby's mouth and pulling it out before it's bitten, chewing the baby figuratively, bouncing the baby on lap or bed, throwing it in the air, blowing compressed breath on its body, pretending to fall over yourself, letting baby pull your hair, playing "This little pig went to market", "pat a cake", rock a bye baby", peek-a-boo, tossing a blanket over baby's head. Piaget's account misses entirely this social scheme of play which many babies experience and which far precedes in complexity anything they can manage by themselves. It is usually many months after these "games" are introduced to the baby that it can reproduce them itself. But more important, the large bulk of these games are exciting to the baby and produce shared laughter between infant and parent. The very earliest games are calculated to catch the infant's attention and involve it in following a sequence of imitations. But as the infant understands this reciprocation and follows your action with its action, then there is also indication of increasing excitement and laughter. Quickly the understanding of escitement is followed by the understanding of anticipation, and that by the understanding of climax. "This little pig went to market" with its sequence of pigs, and the final one that went "wee wee wee all the way home" while the parent tickles the infant up the arm is an excellent example (1974, p. 36). That example and the others tell us that within the familiar and safe relationship of parent and infant, the aim of social play is to induce excitement and relief, arousal and arousal reduction. The critical thing about play if these social examples are being read correctly, is not that it consolidates prior skills (which it may well do incidentally), but that as a safe form of excitement, it is an agreed form of dramatic tension. What both the solitary examples of Piaget and these traditional social examples appear to show is that play is a two phase process of tension enhancement and amusing by those who participate. But the reason that the player can make his solitary play exciting is that he abstracts from his own experience that which he most recently controls. It is this that he varies and makes ridiculous as he sees fit.

C. Play as Reversal

There are two other aspects of play as structure that are essential to any adequate conceptualization. These are the conative and affective aspects. When it was stated above that a state of conflict is translated in a game into a set of oppositions, the important thing about those oppositions is that they are reversible. Reversibility is a key to play just as it is to many rituals. It is useful therefore to unite the concept of play with the anthropological concept of ritual. In some ways play may be thought of as a miniature rite. Victor Turner has discussed ritual in terms of Van Gennep's rites of passage, that is as a separation, a transition and reintegration (1974). Our first section on antecedents may be thought of as dealing with separation. There we were concerned with getting the play started. The present section deals with the transitional yet circumscribed state which Turner calls liminal. The final section on functions will deal again with the reintegration of play into society. In these terms the player goes apart from society into a special sphere defined by its limits of time and place, its rules and its being different (Huizinga, 1949, p. 28). Here, as in all other rituals, the conditions of society may be reversed. Those who are lowly may become high and those who are high may be debased.

In the liminal area of play we can distinguish a variety of kinds of reversals of increasing powerfulness and increasing departure from the cultural mould out of which the form of play has sprung. (1) Play involves a basic mechanism for reversal of attitude towards the external world. Ordinarily the child who is to be master of that world, even when free, is focussed on controlling his relationship to the world as it is. The player however transcends that concern with control of objective things and relates to a world as it might be. He changes things as they are into things as they might be, imposing his own subjectivity on the situation. This mechanism of reversal has been noted in Piaget's observations above as early as two months, and probably occurs as early as a baby can bubble spittle on his lips, free of feeding urgency and free of immediate concern for the nature of tongue, lips and spittle. Interestingly Piaget in observing his children notes this reversible freedom in play as early as two months, but does not observe it in the children's sensory-motor operations until the end-means circular reactions of about ten months. Although the play reversal precedes the senory-motor cognitive reversal in Piaget's own observations, he fails to make anything of it. In the next section on function we will hope to show that this is an example of play's anticipatory character.

(2) The particular mechanism of reversal that first occurs in games is the reversal of *social control*. The players have taken over the social situation, and in the games of order and disorder discussed below we will show them doing this at the first humble level. A traditional children's playground is a miracle of such social order. It has complex patterns and sustains itself with little injury and little adult interference.

(3) Within this system of social control, the games can be highly replicative in a summarized fashion of the adult culture. They can be most repetitive and most imitative. Still there is no game known where players do not continue to vary the situation by *taking turns*. Taking turns is not what happens in ordinary life. The big people get first turn, or at least that is often how the little people perceive it. The game stops all that. It insists on the democracy of taking turns, a real reversal of the one sidedness of everyday affairs. Turn taking itself takes many forms, from simple copying, to true complementary interactions. Different syntagmatic and paradigmatic forms have been studied in detail by Katherine Garvey of John Hopkins University (1975).

(4) As soon as one gets beyond turn taking, *variability of tactics* begins to enter. Everyone changes whatever they can to gain a game advantage. *Cheating* is the classic case of tactical reversal which abrogates the rules at the same time as confirming the importance of the game, as Huizinga has argued. Piaget has shown in *The Moral Judgment of the Child* that most early game playing involves cheating, even though the egocentricity of the players shelters them from knowledge of their aberrations (1948).

(5) Life is full of paired positions, in particular of dominant and subordinate roles and these seldom get shifted around. We spend most of our growing lives being subordinated to others. But in games we not only get control of the social entity, we also get control of *role or identity reversal*. Most early games allow for a reversal not to be found in life. In games you may both accept and reject, chase and escape, attack and defend. But in life you tend to get a one-sided sampling of such reciprocal roles.

(6) As children move beyond childhood into pre-adolescence, they become less interested in reversal of role, than in reversals of achievement. That is, in winning or losing, rather than in being dominant or subordinate. The earlier central person games (chase and escape, etc.) have to do mostly with dominance and remain the most important games in more authoritarian societies. The latter competitive games have more to do with achievement, and become relatively more important in modern Western society. Winning and losing are the key reversals in most competitive games and remain so in Western society (Sutton-Smith, 1969).

(7) By the age of eleven years or so, as Piaget has shown, most children become capable of *rule reversals*. That is, they are capable of changing games to suit their situation and the characteristics of the group. By and large when games are organized for them by elders and are games reflecting professional models (Little League baseball, etc.) they get less opportunity for such rule reversals. But when they play by themselves in sandlot situations rule reversals may often occur.

(8) A final form of reversal to be found either in games or in play is a series of shifts in expectancy or set. These negations of prior play sets serve to illustrate the critical importance of negation in all play. The basic importance of play to the meaning of negation is illustrated by Bateson's reported account of the large octopus in the cage with a small octopus who can only communicate to it that he will not kill it by squeezing it near to death and then letting it go. In this negative way it learns that it is safe. Young children learn the same thing from parents who play with them roughly but not too roughly. Parents who never rough and tumble with their children can never give them that assurance. Little children often attempt to get larger ones to play with them for the same reason. That is, in order to establish some control over their bullying behavior. The game exercises a control that they cannot do without. Play negates the compelling quality of ordinary life. When play in a series of negations we prefer to call it *playfulness*.

It can be argued that if play is a negation of life as it is, playfulness is a satire on play. Some years ago I watched a group of children, after a year of dramatic improvisational experience, develop a game they called the "acting game". In this game a child stands up and takes a character role. Another child stands opposite and they begin interacting. Once started either child may change his role and the other has to accomodate accordingly. The child who cannot match his partner and laughs or falls out of role loses the game. The best player is he who can switch his acting set the most and discomfort his opponent. The recent development of research on children's riddles shows a similar development of playfulness. In riddles some lexical phonetic or classificatory order is inverted or reversed to the puzzlement of the listener. But in elephant riddles, the first reversal is followed by another, by another, and so on, nicely exemplifying the structural character of playfulness as a sequence of reversing expected rules. See below the article on a *Developmental Structural Account of Riddles*.

Recent commercial game inventions also illustrate playfulness as reversal or negation. There is a game called *Beat Detroit*, for which the subtitle is "How to go fifty miles without your car breaking down". Another game has the title *Anti-Monopoly* because in it the concern is to bust cartels, not to establish them. In sum we have suggested that there is a parallel between the phenomena of child play and of cultural rites of reversal. Play is on one level a micro-rite. Because it exists within the subjective control of the player it is de facto a reversal of customary circumstances. He who abstracts to play goes on his way. Structurally his abstraction is a reversal of the usual contingencies of power. And his exaggerations may be a ridicule of the usual canons of sober competence. None of the major theories so far discussed it seems has taken sufficient account of this ridiculousness inherent in play. Although classic recapitulation theory and compensation theory allowed that the subject matter of play contained a great deal that was irrational if not madness, they did so only to get rid of it rather than to recognize in the irrationality some fundamental principle of growth. The same can be said for attempts by Berlyne and followers (Ellis, 1974) to equate the arousal of exploration and the arousal of play. The first is usually quite sober, the second is often not, at least in all the solitary and social examples that we have given in this chapter. Surely, if laughter is present in many examples of play, and not in any examples of exploration, then we are dealing with a different phenomenon. We do not in later life confuse the inventor with the actor. What advantage is there denying any such difference in infancy and reducing both to the same form of arousal? We have argued here, that they are different forms of arousal. Play involves an additional, presumably innate selective mechanism, which permits the infant to tune out other stimulation, while it tunes in a highly personal manipulation of its own competences. This is the mechanism of reversibility to which we refer here, and it's because this is basic to play, that play always contains potentially the possibility of altering, changing, satirizing, ridiculing prior attitudes or performances. The bulk of play theorizing which we deal with in the next section has treated play only as a rational parallel of sober cultural processes, as a result little observation has ever focussed on the way in which the players in fact caricature the very processes which they at the same time imitate. As a result we have no estimate of the relative proportion of convention and invention in the play of children.

In order to stress the point that reversibility is fundamental to play we end this section with an illustration of a very "reversed" playform, in this case, collected from a healthy and humorous seven year old boy. It was one of over a thousand stories collected from several hundred children over several years of a research project on children's narrative (Sutton-Smith, et al., 1975).

> A baby was walking down the street making trouble and when the baby saw a man passing her, she said, "you suck your buggars two times, yeh, yeh," Then they went to a music studio and they heard, "keep coming in ABC, ABC, ABC, 1, 2, 3." And then the baby said, "I can do the whole alphabet ABCDEFGHIJKLMNOPQRS and then TUV and WXYZ. That's how!" And then the baby said, "I spit at you," and then she spitted in the air. Then the baby said, "ABC my buggar!" Then the baby said, "I'm so smart just because I have one tooth out." Then the baby said, "I am Superman, you can't hurt Superman." Then the man said, "You're messing up the whole music studio. Kick the baby out." Then another baby said, "I never saw a baby with a moustache," while putting his fingers in his nose. Then he said, "Me Chinese, me tell joke, me go peepee in your coke." And then the baby that was getting kicked out said, "You're not Chinese, you're American."
>
> Then they saw three ladies kicking their legs up and saying "Legs, legs, legs are here!" Then the girl said, "I shave my eyelashes everyday. And then the baby said, "I think I'm so great because my teeth don't need to be fixed." Then the baby walked into an A&P Wee-Oh Store and everyone was saying, "Wee Oh!"
>
> Then the baby said, "It's passed my bed-time, I better find my way home." Then he accidentally walked into a museum while the guard was asleep, and he climbed into a plastic tree

> and there was a rope hanging on it and he said "Me Tarzan!" Then the baby swinged out the window and about a mile and landed through the chimney into his house and said. "Me Santa Claus." And then he climbed into bed and went to sleep. That's the end.

D. Play as a Vivification and Fun

The present structural analysis has emphasized that play is a bipolar abstract of life, in which the general tensions of life are reduced to the manipulable tensions of the play itself. The two phase structure of abstraction and variation (cognitive) or of arousal and reduction (neurological), must also be couched in terms of affective experience.

During the arousal stages of play the player shows intense involvement. He is absorbed and preoccupied. Most play is like this, even though this is not the character of Piaget's infant examples where he as an observer was perhaps dependent upon the more obvious indications that laughter provides. Our own experience of watching hundreds of hours of nursery and playground play at games is not one of light heartedness. To the intense involvement which we believe constitutes the experience of the arousal phases of play we give the term *vivification*. We believe that play is vivid, not simply because it is the child's own abstract, nor because it is arousing, but in addition because these abstracts are rapid schematics. Like the Freudian notion of primary process they cover much ground very quickly. Like motion pictures they may cover a life in a few minutes. With its cuts, retrospects and flashes forward the modern movie approximates but never quite captures the amazing versatility of the daydream or play. Perhaps the movie is a better metaphor for mind than is the computer. Huizinga has pointed out that a kernal connotation of "play" in many languages is that it is light, quick movement. So another structural aspect of our abstractions and variations therefore must be this quickly summaried and condensed character. A game settles the issue in half an hour. Issues are seldom settled in life. The experience of vivification then may rest in part on this phenomena, although one should not neglect also the various dimensions mentioned earlier by Csikszentmihalyi. His merging of action and awareness, immediate feeback, control of action, centering of attention, loss of ego are all relevant to explain the sense of living vividly that is characteristic of satisfactory playing. (A further discussion of this experience is contained in the article "Viving and Reviving" below.)

But arousal must come down as well as go up. And it seems to be the particular distinction of play that the player has the easy feeling that he can come down whenever he wishes. Perhaps it is this abiding sense of control and release that makes the play *fun*. This is Huizinga's preference. Fun is the essence of play, he says. Yet in the examples of Piaget above, the obvious fun is to be found in the second or exaggerative phase. First there is the excitement, then there is the fun. Perhaps then the word fun is better kept for the more specific euphoria of the tension reduction phase of the play dialectic. Quite often the fun is more obvious just *after* the play, or in the *interludes* between play. It is possible to surmise that with maturity some play sequences are total vivification, with the release phase occuring when it is finished and everyone falls exhausted or amused to the ground. In this work we will reserve the word fun for this more specific reductive euphoric phase of the play.

Here of course we are only dealing with data within the play. As time proceeds play enters into all sorts of complex relationships with other tension arousal-reduction systems. Sometimes play becomes too arousing, and children seek ordinary realities in order to avoid it. At other times, play is used to escape the fear of ordinary encounters. Again with maturity the amount of arousal which devotees may seek in the play at which they are competent can be frightening for those who are not so competent, as in rock climbing and sky diving. As Csikszentmihalyi shows, however, the devotees do not see these behaviors as extraordinary. There is a long history of cumulated skill behind them. At other times, however, as in playing games of "chicken" with weapons or motor cars, the play vehicle is being *used* for other competitive purposed whereby gang members or others challenge each other in quite dangerous and mortal ways. The structure of the game is here subordinated to a life-death issue in power relationships between the participants.

E. Play as Dialectic

We have been presenting a theory of play structure as dialectic. It should be kept very clearly in mind that this is a theory of play *structure* only. It is not a theory of play *function* though it has important implications for such a functional theory. We will deal with functional theory in the next section, where we present the theory of play as adaptive potentiation.

As we have mentioned examples of play as dialectic are easier to accept for the more mature examples of play. Thus Roberts and Sutton-Smith have argued that the game of chess is a representation of the player's conflict over obedience and leadership. Wanting status and having to obey status, which are in conflict in life, are in the game transmuted into a situation where each player exacts obedience from his own social system which he commands. He pits his command against that of another. Here within these rules he can exercise status and power without the fear it would have if he exercised it against those actually in authority over him. The subjective controls of the game allow all the excitement that these issues can generate, but reduce it to the particular game outcomes. There is a displacement from the general life tension to the specific and controllable game tension. It is only a game. You do not have to play. You can quit, and anyway it doesn't matter. A game is a buffered or displaced form of experience.

In some play when the child plays mother, we can interpret it as, for example, Menninger has, a safe revolt against the real mother. The child envying her mother's power, fearing to be aggressive towards her, in play, becomes her mother and thus displaces her without fear and yet simulated power. The play synthesizes what life cannot. If this interpretation is true, then play of this sort can also have a dialectical interpretation.

Do children, then generally play at that which they cannot truly master? Do they reach out typically in play for that which is inaccessible to immediate mastery? Ager in her study of Eskimo children found that they attempted to play at the behavior of the powerful white adults, rather than at the behavior of their own Eskimo adults. Play at animals, at motor cars, at space, at adult behavior could certainly be counted as forms of play where the child reaches out for that which he cannot master as a child. We could certainly argue that his conflict over power and powerlessness are changed in the game into a new expression where he is not powerless but has power at least in simulated form.

But what of the examples given by Piaget? They do not so easily lend themselves to such an interpretation unless we can assume that following the exploration, the child is left with a sense of powerlessness or passivity, which he then immediatey seeks to reverse, by an assertion of his own power. Perhaps the not totally mastered prior exploratory responses leave an abiding moderate tension to which he now reacts with his own voluntary form of tension mastery. Such an interpretation would bring this data into accord with the above formulations. While we do not wish to push the dialectical argument to any extreme, for perhaps it only applies to the more mature forms of play that we have described above: there is the distinct possibility that in the child's capacity to manipulate arousal up or down, we have mirrored his response to his inability to manipulate either of these in ordinary experience where he is usually the victim of the external manipulation of arousal or reduction Either involuntary behavior or voluntary behavior of the exploratory type subject him to the world as it is, sometimes arousing, sometimes reducing. Only in his own subjective sphere of play can these both be controlled at will. This basic play control of emotional amplification or reduction would thus be the root form of all latter play forms within which tensions in the large world were reproduced within the comfort of play for further consideration.

In sum our basic dialectical model of play, is that it proceeds according to some of the same rules as exploratory behavior and is indeed a parallel phenomenon, except that it is under an even greater degree of voluntary control. Further, while exploration is specific to the environmental occasion, play is non-specific It reachers out to simulate tensions from any area of life which concern but do not overwhelm the child. If too much in conflict, the child cannot play. If not made moderately anxious the child is not concerned to play. Play, thus like exploration has a curvilinear relationship to degree of anxiety or conflict, in the general society. Play's relationship to immediately prior exploration seems to be more direct, at least in the Piagetian examples given above. Any newly won competence can be used immediately as the newly familiar basis for exercising control over general tensions. We suppose that the more prior exploration, the more likelihood there is for play. Though clearly this is where external factors of security and example must enter in to permit the transformation from exploration into play.

We are talking then of a two-way process. An immediate relationship to previously acquired skills or tensions and a more general relationship to larger states of tension. The new competence is used by the child to reach out for the unmastered in life and simulate its anxieties. His self-administered arousal jag of vivification and euphoria, becomes thus a dialectical abstract of these antitheses of tension which in life he cannot control. As he grows older, and his tension and abiding problems increase, including the conflicts induced through child training procedures, then within the safety of his play, he reaches out for these also, and subjects them to that peculiar dialectical synthesis of which play is capable but life is not. Thus conflicts over order, over dependence, over safety, over achievement are incorporated into the particular binary game structures where they become games of order and disorder, of acceptance and rejection, of chase and escape, of winning and losing, etc.

Play differs strongly from exploratory behavior then, in not only being self-controllable and in reaching out for general rather than specific unmastered states of tension but also in its easy mastery of tension reduction. In exploration, tension reduction is specific to the increasing acquaintance with a particular novel circumstance. In play, if such redundancy begins to occur, then the player in order to keep the arousal up, instigates more variations. In Piaget's examples it was true we saw an immediate arousal and an immediate catharsis, but they were examples of babies. Children normally keep their arousal high for a long period of time, presumably with the knowledge that they can bring it down at will by stopping the game or by engaging in galumphing as a denouement. So the typical play arousal-reduction graph as compared with the typical exploration-reduction graph is a quick rise, a long plateau of arousal and then a sudden descent. The typical exploration graph is a quick arousal and slow but regular descent.

Our final propositions with respect to this dialectical account of play structure then are as follows:

(1) Play is a subset of *voluntary* behavior (which also includes specific investigation, testing, imitation, construction ...)

(2) The prior exploration provides a *two-fold stimulus* for the play transformation (a) instrumental competences are borrowed from the prior exploration (b) the tension of barely mastered competence, is a source for the simulation of tension in the play.

(3) Whether this borrowing will occur depends on the type of *contingencies* outlined in propositions 1 - 11 at the conclusion of the prior section on antecedents. Intrinsic motivation is by itself insufficient.

(4) Play is a *selective mechanism* which reverses the usual relationships to the stimulus world tuning out or negating these relationships. The principle of reversibility remains the abiding and most fundamental dimension in all subsequent play elaborations, being institutionalized on the cultural level in rites of reversal.

(5) Play is an *abstraction* from or centration upon those part of prior instrumental behaviors which are most controllable.

(6) Play is composed of *two phases* which in structural terms are those of abstraction and variation (galumphing), in neurological terms are those of arousal and reduction and in affective terms those of vivification and euphoria (fun).

(7) This two-phase binary operation in play constitutes a *dialectical simulation* of the more general and relatively uncontrollable and often unconnected tensions of both arousal and reduction in ordinary experience. Play is a progressive dialectical phenomena because it can synthesize these oppositions in even new forms.

(8) Play is like exploration in being an arousal and reduction phenomenon. It is like exploration in having a curvilinear relationship to prior tension, that is, tending not to occur when that tension is too great or too little. Both exploration and play are motivated by moderate levels of pre-existing arousal. Play is like exploration in being more likely to occur in complex and stimulating environments.

(9) But play is unlike exploration in its tendency to maintain arousal at a high level with sudden reductions as required under the subject's voluntary control. Play maintains arousal at will within the general knowledge that it can be reduced at will. Exploration however shows a regular and steady decrement of arousal with increasing contact with its object. Play simulates tension in the general experience of the player, rather than being related only to specifically novel immediately antecedent events.

(10) As a dialectical structure play transcends the conflicts of affective experience, while games transcend the conflicts of interactional experience. Play incorporates the dynamism of the dramatic rise and fall of tension. Games subordinate this dynamism to the drama of interpersonal relationships. Sports incorporate both in a larger context of community involvement and self-representation.

We can summarize this structural definition of play as dialectic, and as a form of intrinsic motivation, as follows:

> Play is a subset of voluntary behaviors involving a selective mechanism which reverses the usual contingencies of power so as to permit the subject a controllable and dialectical simulation of the moderately unmastered arousals and reductions of everyday life, in a way that is alternatively vivifying and euphoric.

III. The Functions of Play

We have sought the causes of play first in various extrinsic and antecedent variables (Section I), and secondly in variables intrinsic to play (Section II). The greater body of theories about play, however, has been directed at its consequences, at what it is supposed to do for the child or the society. In this section we take up these points of view. There are traditional theories of play which are governed by the work ethic (A). These are considered first briefly Then there is a section on the dominant point of view of this age, that play socializes children into culture (B). After this we present new data on play and novelty which seems to argue in contrast, that play may well socialize children for innovative behavior. It may be a kind of unprogrammed innovation training (C). This material is then interpreted in terms of a theory of play's function as that of adaptive potentiation (D). There follows an attempt to reconcile these integrative and innovative viewpoints and deal with the ways in which the events of play become transferred back to other forms of adapation.

which is what must happen if play is to have a function for personality and culture (E).

A. Work Ethic Theories of Play

There is a considerable body of research which shows that although the puritans were against traditional folkgames and pastimes, they did approve physical exercises for character training and bodily health. Sports sociologists such as Renson (1976), McIntosh (1963) and Luschen (1967) have shown the linkages between protestant achievement training and the ascetic element in modern sports, which permitted this early opposition to give way in favor of the newer forms.

In the article "Viving and Reviving" below we have characterized this negative attitude to play as a "Scroogian Ethic". We believe that in a sense the same apologetic attitude carries over into some of the classical theories of play: surplus energy, relaxation, recreation, recapitulation and compensation (Herron and Sutton-Smith, 1971). All these theories assume that the prevailing norms of life are appropriate but unlike the work ethic, or the Scroogain play ethic, they also presume that some moderate amounts of play might be of adjustive or healthful value for the worker. We have here the same compromise with puritanism that took place in the history of sports. In all these accounts play is not a primary formative area in life, it is a useful curative or defensive agent.

Analysis of these older "prophylactic" theories (because they emphasize the preventive properties of play), might show legitimate observations were involved. Perhaps the "arousal" properties of play are what attracted the notion of surplus energy. Again its reversals of power seem relevant to both the notions of relaxation and recreation. Its wild inversions are dealth with in both recapitulation and compensation theories, although largely with the purpose of eliminating the need for them.

B. Socialization Theory

Most of the explanations of play during the past 50 years are of an integrative nature. That is, they explain how play, games and sports integrate the members of the society into its larger cultural patterns. Given the neglect and denigration of this area of living in prior centuries, one can see that these "integrative" theories have been a part of the rehabilitation of play into respectable discourse. By showing that play, games and sports socialize the young, we prove they are worthwhile (Loy and Ingham, 1973). Unfortunately, while this mode of approach helps play, games and sports in the ideological sense by proving their value to society, it may well do a disservice to their actual character. If their function is not merely to integrate but also to innovate, then their character may be one-sidely conceptualized. Still, before we consider possible innovative interpretations, some review of integrative interpretations is in order.

a. play

In describing play as the child's work, as so many have done, an attempt has been made to justify its importance, particularly in the nursery school. Or in describing play as the external means that a child uses to organize within himself the responses he has experienced from others, as does George H. Mead, play is given a fundamental role in social growth. Even in suggesting that in play the child integrates his feelings through licensed rebellion, the psychoanalysts are arguing that there is mental health in play. Although play may only "hallucinate" ego strength, play nevertheless contributes to a sense of personal mastery (Erikson, 1952).

But the question that must be raised about all of these explanations, as well as the more recent ones of Piaget and Brunner along similar lines, is whether we are discussing voluntary activity which is indeed exploration oriented, or voluntary activity which is play oriented, as discussed in the first two sections above. This distinction is not clearly made in most disucssions of the subject and as a result the functions of play are not clearly distinguished from the functions of exploration. Even with Piaget, who created this distinction between accomodation (exploration) and assimilation (play), one is often at a lost to know what he means by playful assimilation. He seems to treat it as an adjunct to thought, but does not clearly delineate the status of that adjunct. In my critique of his theory I have argued that this is because his view of thinking deals largely with logical operations, rather than with creative and innovative ones (Sutton-Smith, 1966). Play prepares for the latter rather than the former. Piaget would argue that there is no such distinction in thought. All thought is logical. But amonst those concerned with the arts, much of the relevant thinking is metalogical or metaphorical, and it is here that play seems most relevant.

b. games

The conflict-enculturation theory of games offered by Roberts and Sutton-Smith and summarized in the article, "Towards an Anthropology of Play", is a thorough-going socialization account of games seeking to explain their role both in individual development and cultural history. It is in the tradition of Malinowskian functionalism. Games play their role in normative enculturation because they symbolize underlying conflicts, arouse those who have these conflicts, invovle them in playful representations of the conflicts, and thus induce forms of learning which have cultural relevance. The isomorphism between a conflict induced by child training and the play representation of that conflict is taken for granted in this theory. The game conflict over obedience is modelled by a battle between social systems on a chess board. Conflict over independence is modelled by chasing and escaping in a game of tag. Conflict over quixotic resources is modelled by battles with lady luck.

What the theory does not explain, however, are the types of reversability outlined in the prior section. While a game may model the poles of a particular conflict, it also allows a flexible access to both poles that is not available in the real life situation. The chess player may be always a subordinate in his life situation, but he may be both superordinate and subordinate in the course of his games. The tagger may always flee in everyday life, but may both chase and flee in the game. Games exist to render conflict malleable. They do not merely socialize by mirroring; they socialize by mirroring and inverting. They are radical as well as conservative. This element is not really dealt with in the theory of conflict-enculturation, although it can be fitted into a revised version of that paradigm. What such a revised version requires is a more careful specification of the types of reversal that a game allows, and the parallel life areas that are thus made more flexible for the player, along the lines demonstrated in the article below on the games of order and disorder. But we will atempt to conceptualize these matters more completely in the next section on innovation.

We have noted in the first section that there is an increasing body of research which attempts to show that games do parallel other cultural processes. These researches do not add anything of a fundamental theoretical sort to the points already made, but they do serve to further substantiate the claim that games reproduce many of a culture's major characteristics. This was true of the games Eiferman found characteristic of the Kibbutzim children who were both co-operative and competitive in their preferred games (1972). It was true of the Amish children in the study by Hopkins mentioned earlier. In will be recalled Hopkins predicted that children in traditional Amish groups which are of low economic specialization would play games of low role interdependence. Games of low role interdependence are those like Hide and Seek and tag games. Those of high interdependence are those like baseball and football. And indeed he found that Amish children continued with Hide and Seek to more advanced ages than did children in non-Amish elementary schools. The same finding has been registered when social class comparisons have been made. The lower social classes tend to persist with the Hide and Seek type games to a later age level than the upper social classes. Lehmann and Witty in the 1920's showed that girls also persist with these types of games until later ages than boys. As a complement to this Durkheim thesis, my own preference has been for seeing the central person games of younger children as modelling the more heteronomous perception of younger children, and the more egalitarian games of older children as modelling their more peet related perceptions. In the early tagging or central person games, all events depend on the actions of the central figure, as Farmer in the Dell, the "It" in tagging or the Mother in Mother May I (Sutton-Smith, 1972). Traditionally girls were kept within the bounds of the family until a later age period than boys and hence showed a continuing preoccupation with games that reflected their greater concern with adults in authority. This seems to be less true today and Hopkins did not find the sex differences noted earlier by Lehmann and Witty. Similarly in the lower social classes power relationships tend to be more starkly hierarchical than those in upper status groups. The continued play at central person games in those groups may reflect this fact. In the lower socio-economic games recorded by Jones and Hawes, the organization is almost entirely of this, one person dominating the rest, or central person, type (1972). Smilansky has noted that even in preschool play children of lower socio-economic groups find it hard to play except when one child is completely dominant over the rest (1968). This seems to add support to the thesis of Roberts and Sutton-Smith that games are models of power. This thesis says that the particular aspect of the larger culture which is most likely to be modelled by games is the power relationships. Unfortunately, it is not easy to disentangle power relationships from the patterns of interaction (co-operative or competitive) in which they are embedded, so it is not easy to say whether the major modelling process involved is the type of power application (arbitrary, strategic, chance, or force) or the pattern of relationships (unilateral, multilateral, competitive, co-operative ,etc.) through which it is expressed (Avedon, 1971). There is some evidence that in children's play, that which is reproduced by them is more likely to reflect not so much their familiar experiences, but rather the external power which is most threatening to them. At least one might put this interpretation on the more frequent play at "schools" found in minority groups who succeed less well at schools (Lehmann and Witty, 1927), and the play at white man's activities by Eskimo children who actually have little acquaintance with these (Ager, 1974). These are not very strong forms of evidence, but they may be useful at prompting further research into the relationships between cultural "powers" and play and game content.

A most thorough research into the games of another culture is that of Glassford on the Eskimoes (1970). He demonstrates that the traditional Eskimo tends to practice games of lower organization as compared with the modern Eskimo. The former tends to give greater emphasis to individual self-testing, the latter to team competition. What is particularly interesting is his analysis of the self-testing by the traditional Eskimo in terms of the units of economic work to which the traditional Eskimo was accustomed. According to Glassford, the Eskimo's life depended on skill in immediate and pragmatic actions. This short range decision making was closely associated, he argues, with a people involved in eking out a subsistence from the land and was in all likelihood much more appropriate than long term operations. The interest in this analysis is that it focuses not primarily on social issues (interaction and power) but on the organization of labor. Perhaps in the meantime we need not choose between these alternative interpretations of how games socialize but we may speculate, rather, that in different societies game structures function differentially. We know from an overview of games in any particular society that games are to be found in a variety of contexts, economic, social, political and religious (Salter, 1967). It is probable that games as structures do not differ from other human structures in demonstrating flexibility in structure-functional relationships.

Still the point of this review is to indicate that the major burden of theorizing about games had been to show how in one way or another they have been said to model the larger society, and have been presumed to contribute to its socialization processes and, therefore, to its integration. In this view social structure antecedes play, but then play, by modelling the social structure, prepares the child for his place in it.

c. sports

The major ideological tradition concerning sports from the 19th century is that they confer the virtues of teamship, courage and leadership upon those who participate in them. They integrate the players into the leading ranks of society. The actual evidence on sports participation and its consequences is much more complex. Sports often do seem to have an upwardly mobile function for those who come to them from lower social status (Renson, 1976). Whether the sport is itself the escalator or merely the vehicle for the upwardly mobile is not completely clear.

In Watson's work on social status and Little League baseball, the middle class participants use the game as a part of their pursuit of individual ambition, whereas the lower classes emphasize more collectivist and ritualistic usage (1973). The lower class members and parents both emphasized the good of the larger group, the team, whereas the middle class boys emphasized their individual achievement. Probably, as compared with gang loyalties, this team ethic on the part of the lower class represents a movement beyond parochial to a more national form of social integration. In the game, hostilities are structured in larger more extensive forms, than would be the case in the usual kinship urban situation. This fits with the Elias concept of historical change in sports as quoted below in the reading, Play, Games and Controls. According to Elias the history of sports is a history of socialized aggression into ever larger and more comprehensive forms. In my own work A History of Children's Play (Wellington, New Zealand, New Zealand Council of Education Research, in press), the picture of change in the New Zealand school playgrounds from 1840 to 1950 was clearly one in which aggression and violence was gradually domesticated. As far as could be told, organized sports played a major role in this domestication.

There is a line of argument here across play, games and sports, which suggests that a major role in all of these is the socialization of aggression. This is the major argument of the psychoanalyst Menninger in his explanations of children's play (1942). It is the major argument of Harlow in his accounts of what play does for primates. Those primates who do not play with their peers cannot control the gradients and appropriateness of aggression. Those who do play, know when and where aggression is appropriate and they know how to turn it off and on. While no one has made this argument for children's games, it would seem fit. Presumably games would socialize aggression in the first social groups of the six to twelve year old and sports in the larger groups after that age (Suomi and Harlow, 1971). Gabler's study showing that most "aggression" in sports is "socialized" to game norms could be regarded as supportive. He studied fouls in Olympic team sports and the great majority were related to game progress and were not directed at other players except for that reason (1976).

Following a line of argument of this sort implies that socialization through play, games and sports probably occurs on quite different levels at the same time. Children generally are initiated into games either by their parents, as described in How to Play with Your Children (Sutton-Smith and Sutton-Smith, 1974) or by other children as described by Piaget in the Moral Judgment of the Child. In each, the induction involves learning a system of rule-governed behaviors which control one's egoistic behavior as well as permitting its expression. This is where the control of aggression is presumably learned and the controls established. By listening to elders, and by modelling their behavior, the child gradually approximates the approved patterns of play. Often children can be seen playing games in only a vague paralleling of their real character. But by modelling after the others, taking this role and then that role, in a copyist way, they gradually come to penetrate the character of the reciprocation. We do not yet know how they take the step of having insight into the reciprocity of the roles. The literature on the learning of concrete logical operations in the Piagetian sense is relevant here. Some believe the child learns about the reciprocity of roles by having it made verbally explicit for him, as in rule training. Some believe simple participation in the different polarities and their contrary relationships, in due course, quite of itself, generates new insight into the reciprocity. At the moment about all we can contribute to this difficult problem is to suggest that it is in the very nature of playfulness to proceed by oppositions, so that play as such is presumably a good arena for the learning of oppositions or negations. This may help to explain why the oppositions of play can be understood several years ahead of the oppositions of concrete logic. Children can play hide and seek at about five years but they cannot conserve identity until about seven years, which is further evidence of the way in which play anticipates life. But this in itself does not explain how the oppositions of the games themselves are learned. We suspect that the answer lies in a graduated series of such oppositions which have been learned from infancy, each set providing the underpinning of those above it. The more subtle forms of play socialization, other than the control of aggression, and the learning of antitheses, have yet to be studied. The conflict-enculturation thesis suggests that there is an array of reciprocities to be learned, the meaningful elements of which are provided by the larger cultural system.

In a larger cultural context the values that *sports* in particular might have for socialization, have been illustrated by Barbara Babcock-Abrahams, dealing with folktales (in press). Her classes of "integrative" explanation are as follows:

(i) *Operative*: Sports integrate because they can take place within a ritual context involving such phenomena as the national anthem and the flag, and in this way contribute to the learning of a variety of cultural operations.

(ii) *Iterative*: Sports integrate because they re-emphasize the major value system of the larger culture, such as winning, team loyalty, courage, etc. The sports are held to model these values and coaches and sports writers constantly mention them within the context of the game, so that quite apart from anything else, they become a part of what people think about themselves. Generally the players within sports are expected to behave in accord with these values even in their private behavior. When they do not, they become anathema to many of the fans.

(iii) *Validatory*: Sports integrate because they are models of other systems of action. The major burden of the previous pages has been an analysis of what is modelled in terms of these systems of action. We have paid attention to power, to interaction, to economic units, to personal integration and to the socialization of aggression as some of the major systems which are brought under control in play, games and sports and thus validate similar achievements in the larger culture.

(iv) *Catharsis*: Although not much attention has been paid here to this form of integration, it has long been argued that play integrates by permitting tension release, or licensed rebellion, etc.

In sum, we have put forward a number of conventional explanations of why games and sports might socialize. Different theorists have favored different foci, including the views that games socialize the learning of power tactics, interactional systems, aggression and reciprocal social interactions. As a final note we have suggested that there are many other aspects of games and sports which might also be the focus of such socialization inquiries. It seems probable that while all these aspects may be present in most games, different cultures will tend to emphasize the importance of learning some particular patterns over others.

The most important and negative implication of always seeking to explain the socializing value of play, games and sports is that this interpretation serves to extend basically work ethic or puritanic attitudes into this area. Thus early childhood educators and newspaper columnists love to describe the child's play as his work. The most admired coaches of recent years on the American scene have been the advocates of rugged discipline and winning at all costs. In both cases the variety of human spirit, its non-conformity, its individuality are being subjected to new forms of group pressure so that there is even less scope for personal development. One virtue of the older view that play was unimportant but that children needed "recess" so that they could work off their surplus energy, was that it left a prescribed area of freedom. The great danger in our current "understanding" is that we will reduce the area of such freedom. Even our own advocacy of showing children how to play has the danger that it might lead adults to dominate that play and not to realize that while modelling new play and games has value, leaving the children alone to work them through themselves is equally important. Further, if play is indeed a source of cultural innovation as we will maintain in (C) below, theories that stress only its socializing value seriously distort and perhaps impeded that particular function.

C. New Data on Novelty

(a) play[+]

Let me begin with a study of my own (Sutton-Smith, 1968) which was motivated by the findings of Wallach/Kogan (1965) and Liebermann (1965) that there are relationships between playfulness and creativity. Wallach and Kogan found that their subjects did better on creativity tests when a playful atmosphere was established. This led me to suppose that play may perhaps serve creativity because during play the players do unusual things and in so doing build up a repertoire of novel responses. I reasoned that if we could contrast the toys with which children played as compared with toys with which they were merely acquainted, they would have many more novel responses for the former. I chose toys which a group of kindergarten children said were their play favorites, namely trucks, blocks, dolls and dishes. The first two were play favorites with the boys and the second two with the girls. I predicted that the sexes would not differ on their acquaintance knowledge of these objects (derived presumably from exploration), but they would differ on their ability to give unique usages for these objects (derived presumably from their more extensive play with their own sex objects). The subjects were tested individually. In each case the subject was told that he was going to play "The Blind Game", in which the experimenter would pretend to be blind. He was asked two questions, "Tell me what this looks like since I can't see it", and "How can you use it". As predicted, there were no differences in responses to the first description question, but there were significant sex differences on unique usages in favor of own sex toys.

This study has recently been replicated in a more careful way by Dansky and Silverman (1973) of Bowling Green University in Ohio. They assigned their subjects to three treatment conditions, one involving play with objects, one involving imitating an adult's behavior with those objects and a control. For play and imitation groups the stimulus

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[+] The material in this section is adapted from the paper: "Play as Adaptive Potentiation", Sportwissenschaft, 1975, 5, 103-118.

materials included: a pile of 10 paper towels; a screw driver; a ~~wooden board~~; 15 blank cards, 10 empty kitchen size match boxes, and a tray containing six wet plastic cups. Subjects in all groups were given sketches to do in the first rapport building session. Control groups proceeded to more sketches in a subsequent session. The play group was told, "You may play with all these things. Do whatever you would like to do with them". The play period lasted 10 minutes. If the child ignored any objects, he was given a reminder that he could use them. Imitation subjects were asked to watch the experimenter as he performed four tasks (turning screws with screw driver; fastening cards with paper clips; wiping wet cups with a paper towel; putting small sticks in empty match boxes). They were asked to repeat the experimenter's actions exactly as they had seen them. The time spent on each task for each imitation subject, was matched to the time spent on those objects by the previous play subject.

Immediately after each 10 minutes, the subject was asked of four randomly selected objects, "You can use this in a lot of different ways. I would like you to tell me all of the things that you could do with it, make with it, or use it for". Responses were scored as standard (a usage for which the object was primarily designed) or non-standard (all others).

Confirming the earlier study, there was no difference between groups on standard usages, but a very significant difference in favor of the playgroup on non-standard usages. Furthermore, the playgroups in their non-standard responses made more us of the surrounding cues. Thus a child says, "You can use the match box to make a lamp" (and there is a lamp nearby). As the imitation and control subjects did not differ significantly, it was clear that it was not mere exposure to the objects that counted, but a particular type of exposure which afforded the children the opportunity to vary their responses to the objects freely. There is other work in the literature that suggests that even within play conditions, similar differences can be produced, for example, by the relative degree of structuring of the materials. More structure produces less imaginativeness (Singer, 1973).

In a study by Glasberg (1975) children were presented with toys under two conditions. In one the toys were thematically related to each other (shovel, rake and watering can); in another the toys were not related to each other (shovel, boat and phone), and a third group drew and colored in the same setting as a control. The children in the second condition with the unrelated toys gave significantly more unique suggestions for the use of the shovel than did the children in the first condition. It was concluded by Glasberg that unrelated toys as opposed to related toys, facilitate imaginative behavior and, consequently, create divergent thinking. When the toys were a part of a known theme these four to six year old children did not change their identities. When they were not part of a theme, then the children altered their identities in order to make some sense for themselves out of the relationship, an example, perhaps, of what Piaget has termed "distorting assimilation".

Following the present concern with the associations between play and novelty, however, the most impressive piece of recent research is that of Feitelson and Ross (1973) at Harvard. Their study repeated the new play participation techniques initiated by Smilansky (1968). She was concerned to raise the level of imagination in children and did so by playing with them and modelling pretense for them. Feitelson and Ross play-tutored a small group of children twice a week for half an hour at a time over a period of five weeks. They were compared with children who played without tutoring or who had music tutoring, at free play prior and subsequent to the training sessions. In addition all children received a battery of creativity tests before and after. The children who had pretense modelled for them showed significant increases in their post session levels of combinatory and innovative play and in their scores on the creativity tests.

If we put together the researches of Liebermann, Wallach/Kogan, Dansky/Silverman, Singer, Smilansky, Feitelson/Ross, and some others I have not mentioned but which are of a parallel character (Marshall, 1966; Bishop & Chace, 1971; Hutt, 1966), we have, I believe, at least tentative evidence for the view that play is associated with the emergence of novel responses, responses which may be employed to good effect on creativity tests in which such uniqueness is the major criterion for success.

b. games

Unfortunately the work on games and sports as sources of novelty is not as well developed. They are forms of socialization that are more clearly understood by adults and, therefore, are more systematically a part of the normative educational apparatus. Still there is a great deal of anecdotal data from the widespread use of games in game simulation that children who participate in those activities become more skillful at game construction. Children who participate in courses where the object is to have insight into games, not merely to play them, appear to gain a considerable ability to govern their own voluntary activities and bring other children into their orbit. Here, of course, we are doing for them within education what they used to do for themselves by folk tradition. In groups where there were such game-playing folk traditions, there was always a considerable amount of game variation, particularly by children of early adolescence, although in most present circumstances these children are organized into adult sports in their free activity and lose the opportunity for free variation upon traditional themes. Though one should not under emphasize the extent to which this still occurs in sandlot games.

Physical educators in various parts of the world have for some time been providing children with game materials, and then asking them to create new games, or even to create the old games under some confining circumstances. For example, one physical educationist reports training a small group of children in game innovation. These children stayed after school to carry out the games they had invented, often with diverse and unrelated sports equipment (ball, oar, hoop) as in the Glasberg experiment cited above. The school playground, normally empty after school, was soon occupied by hundreds of children attracted to playing with those who were there trying out their own games. Either the adaptation of an old game to new circumstances (small space, speeded time, fewer players) or the creation of a new game, may be regarded as a novel form of group training. These are socializations for innovation. Although these are examples of games being used as a technique for social innovation, we have to keep in mind, that the game itself with its various possibilities for reversal has always implicit within it the grounds for its own changeability. A game, unlike a ritual, is a vehicle which can be constantly changed to increase or alter the advantages for all or some of the players.

c. sports

Novelty in the area of sports seems to be rarer than with play and games, though in recent years groups such as the Esalen Sports Institute has explored the possibility of creating new sports, and of staging sports days for all members of the family. These happenings have emphasized a more collaborative approach to game playing than we usually associate with sport. Various investigations of the changing nature of sports in different countries have shown a more heterogeneous dispersion of interest than used to be the case. This might lead us to assume that more and more people are using sports in a smorgasbord fashion as a symbol of their own freedom to choose their own form of play. Here the innovation may not be so much in the sport form itself, but in the possibility of making varied choices across many sports forms. As we go back historically to an earlier period in this century the typical picture was one of masses of people playing and interested in only one or two forms of sports. With increase in prosperity more people have been able to imitate the varied sporting activities and interests once the preserve of the wealthy. In a sense the various ways in which modern games, even of football and baseball, are changed every few years in order to retain audience interest, provides a new model of what can be done innovatively with sports. Here the pursuit of vivification in the audience (and of the consequent commercial pay off) becomes the criterion, not any historical necessity of retaining the game as it has always been played. Speeded up versions of cricket, always an endless game which could last for several days, are a good example of this newly innovative aspect of modern sports. Team tennis is another such example. Once the masses were lucky to be able to attend these sports of Kings. Now the masses as consumers are King, and the games cannot hold their attention unless they continue to be suitably modified to suit the consumer taste. Violence in professional ice hockey is another example, one in which this trend in the game conflicts with other mores in the larger community.

But there are other ways in which modern sports have become models of change, rather than simply models of conservative learning. Typically a sport has been defined in terms of a physical contest, and this has been a historically relevant way of perceiving sports. However, it seems that a more relevant definition would centre on the fact that a sport, unlike a game has a distinctive social context in which it must take place. See the accompanying paper, "A Structural Grammar of Games and Sports". It is a game of skill which *communicates* with certain relevant audiences. Typically also there is an apparatus of coaches, and critics (newsmen, sportswriters and gamblers) who have also become essential parts of the sport. The sport involves all these people in a variety of related roles. We make a mistake in assuming that the game at the center of the activities is the sport. It is not. It is only the occasion around which a large number of social activities are focussed. What this means is that variations in the meaning of the "sport" can be introduced by any of these people. The sport, which means all these activities, carries on practically continuously, with the embedded game providing a climax or a verdict only on rather brief occasions. In these terms there is no reason to believe that chess may not some day become a sport as it did briefly on the occasion of the Fisher-Spassky contest. The addiction to games of physical skill as the center of the sports occasion is presumably a reflection of the needs of past forms of survival. As we move into a world organized along more symbolic lines, it is highly probable that games which introduce competition or collaboration of a more symbolic sort will increasingly engage our attention. In a sense modern American Football which is a highly strategic as well as a highly physical game may be regarded as a vehicle of transition from one order of life to another.

There are other ways in which sports vary from games. The players in games are relatively anonymous. By contrast all the players in sports are potential heroes or heroines. Such heroism can be conferred only by cultural groups more extensive than the game players alone. A game is relatively parochial. A sport has greater universality. It crosses ethnic and national boundaries. Obviously there are many mixed cases and distinguishing between the two is sometimes as unsatisfactory as deciding the difference between a folk tale and a myth. But once again we are perhaps right in thinking of the two as ends of a continuum, with the more sporting event having the larger number of "sporting characteristics". Thus if you have coaches, audiences, radio, newsmen, television, gamblers, referees, linesmen, time keepers, a band, organized rooting sections, etc., you have more of a sport than in the absence of these characteristics. Sport, like the myth ~~appeals~~ to more factors in the community and is thought to be relatively more serious in importance, dealing not only in heroes but at least implicitly with the Gods of the local populace.

An interesting new form of variation introduced by vicarious television watching and the instant replay of sports actions has been the enormously increased aesthetic element in sports. When a viewer can be given a repeat of an outstanding action from many camera angles he has the opportunity to assimilate at relative leisure the excellence of the performance. This re-presentation of action turns the sport into an art form. Admittedly this is as yet an art form of low self-consciousness because of the rapidity of the replay. But still, choices must be made, and this is art, not sport. However, when the sport is recaptured on subsequent occasions as in the pictorial build-up to a new program where earlier sports pictures and music are combined, we have quite clearly a new phenomenon which we might well call *aesthetic sport*. Here various technically competent artists have selected pieces of prior games and combined them advantageously with selections of music into a new multi-media synthesis of sight and sound. Naturally all of this is as yet restrained by the audience desire to correctly perceive the game. But like all aesthetics it expresses and embellishes the main currents of life within which it is found. In the article *Creativity and Movement*, we argue that while play, games and sports *make* forms, they do not represent forms. Television has introduced such representation into sports and made it much more important than could previously be the case when all there existed was occasional paintings and band music of sports content.

The clearest example of sports that have completely made the transformation into art is provided by the international Gymnaestrada which occurs every five years and has been heralded as the alternative to competitive olympics. Here the movement and gymnastics to music, being non-contestive, may follow the impulse of any creative musical or dance form. Here *sports* become harnessed to the most creative aspects of the modern musical, the modern symphony and the modern dance as well as the classical ballet. Sport at this point is completely unleashed. As the different clubs and different nations vie with each other to receive the acclaim of the audience which usually participates by clapping or stamping in rhythm with the event, from olympic (gymnaestrada) to olympic the clubs may veer off into whatever novelties they can sustain in this type of representation.

What we have been trying to document here is the seriousness of the contention that sports as well as play and games, can also be seen as models of novelty or innovation. They may be models of socialization. They are also models of social change.

D. Play as Adaptive Potentiation

We now take a metaludic step and see if we can subsume this evidence on novelty to some larger adaptive definition of play.

We know that higher animals play more than lower animals. Bruner (1972) speculates that the dividing line is between species that specialize, and species that are opportunistic with respect to environmental resources as well as having more challenging environments. While the evidence is not substantial, it seems probable that there is more play in more complex cultures. At least Roberts and I (1962) found that game playing was more diversified in more complex than in more elementary cultures. Some investigators have also presented evidence to show that modern children are more playful than traditional children (Smilansky, 1968; Feitelson, 1954). What is certainly clear from cross-cultural research is that the conditions for such playfulness vary widely across cultures. In those cultures where cultural roles are rigidly prescribed for survival purposes and where children are early inducted into the world of adult work (such as carpet weaving in the Middle East or silk weaving in India), there is little encouragement for or time to play. By contrast in modern society, where there is a demand for adaptation to novel requirements, more children create model worlds, indulge imaginary companions and act out flexible socio-dramas than was ever envisaged for children throughout the bulk of human history of which we have record.

These circumstances, biological and cultural, certainly seem to fit the notion that a species or a people plays more when they have more adaptive need to be prepared for novelty. It is interesting to note that in the relevant animal studies by investigators such as Birch (1954), Schiller (1952), Lancaster (1968), Loizos (1967), Eibl-Eibesfeldt (1970), Mason (1967), various species have been recorded to use objects optionally in an extraordinary variety of ways when they have been free from the obligatory pressures of need or reward. A finding which remarkably parallels the human studies above. Furthermore, it is clear in these play accounts that this "extraordinary" variety is not a preparation for immediate and specific future acts. Practice theories of the biological or sociological varieties are not supported by the animal literatures on play. Though I might add, parenthetically, that they are supported by the literatures on exploration and observational learning, which are often confused with play. If this extraordinary variety of actions, a variety which on the human scene Piaget (1951) has chosen to call "distorting assimilation" and that have been referred to as imaginative, absurd, fantastic, serendipitous, nonsense, etc. (Sutton-Smith, 1967), is of any evolutionary significance, then it must be to bring these responses into a state of readiness for potential usage, not for specific immediate needs. Play prepares for the unforeseeable future, not the forseeable one. I would propose therefore that we label its evolutionary biological function as that of adaptive potentiation. It produces an array of responses of potential value.

Within this kind of definition of function it is much easier to understand why much of play is not a sober preparation for society as it is, but a distinctly unsober colligation of conventional novelty, of sense and nonsense. When play is only the *envisagement of possibility*, then anything is possible. And as reversibility is an essential mechanism of play it is not surprising that society is often held up to parody within the play forms. To the outsider, in fact, the players' "distortions" must often seem quite random. New ideas and combinations arise in an unpredicted way. Whether this randomness is inherently unpredictable is at this time difficult to say. We suppose that theoretically it is not. But the accumulated experiences and tensions in any individual's life history certainly make it practically unlikely that we can very often predict the direction of his or her new "reversals".

The very notion of playfulness should have long ago warned us that play, games and sports may not easily fit into our normative interpretations of the way in which society works. After all, with so much nonsense and facetiousness, how can these things really help socialization? The fear of the variegation they contain was actually implicit in the work ethic. There is no point in opposing play unless it creates effects contrary to the focussed work oriented behavior that is desired.

We have seen in the section on socialization that the orthodox "functionalism" of this century has supposed that because societies are structured, then "their component institutions and regularized activities are adjusted to each other in such a way that they maintain the system in entirety" (Murphy, 1971, p. 11). In this conceptualization the task of the game theorist is to rationalize the isomorphism between the game microcosm and the cultural macrocosm. The assumption is that all things are in balance. But as Murphy argues, chaos and disequilibrium have always been just as much a characteristic of human society as regularity and order. Society is *order and disorder*. Therefore, a functional view of games must introduce principles of disorder as well as principles of order. It must deal with the fact that the individual, subject to his culture, experiences not only the command of the norm but the alienation of his own desire for autonomy in relationship to that norm. In this work therefore, we have sought some understanding of the way in which play, games and sports transform both the impulse towards order and the impulse towards disorder in their own substance. Having shown that play expresses the order of the society of which it is a part (the power, the interaction, the economics, the aggression), we have suggested also that it expresses the disorder, or the uncertainty or the desire for change.

But if play potentiates for both order and disorder, what empirical evidence is there that its contents are actually *anticipatory* of subsequent adjustments in the ordinary world? Unfortunately there is very little. There are, however, several groups of studies which can be regarded as supportive together with the general commonsense data that children act more complexly in play than they do in life. To take the later first. An 18 month old child can go through a series of play representations involving feeding, bedding and toileting a doll that far exceeds in complexity anything the same child can produce in speech. Communication at that age level is limited to one word, and occasionally two. It will be several years before the same child can say, "I am feeding the baby. I am putting it to bed. I am putting it on the pot". Again, five-and six-year-old children can play reciprocal chasing games, and engage in interactions of a complexity that they do not seem to be able to maintain outside of games in their ordinary affairs. Similarly chess players often show a mental sophistication in their play that they do not match in their application of mind to everyday problems. These common sense examples seem to suggest that higher forms of organization are first adumbrated in play where the subjectivity of the event makes it easier for the players to reach these levels. Everyday life with its many demands and contingencies makes it difficult to reach such levels.

On a research level the above data on novelty all imples, it seems to us, that new forms appear in play before they appear elsewhere, and the Feitelson and Ross study seemed to confirm that such forms could be produced experimentally by play. There is another small group of studies involving improvisation in which it has been shown that when children are asked to improvise in more play-like conditions they do so on a more complex level. When more work-like constraints are placed on their improvisation, they lower the level of complexity they can produce (Overton and Jackson, 1973). Again, in recent research on the relationships between complexity in play and in speech, the more complex play forms have always preceded the more complex speech forms. (Nicolich, 1975). In our own research project on children's stories, Lee Peterson has demonstrated that children making up stories freely told, as compared with stories told to a thematic apperception picture or a Rorschach inkblot, tell stories of a higher level of complexity in the former case (Petersen, 1976). Again, in our interpretation, in the most play-like circumstance, they tell the more complex stories. The technique for scoring complexity was devised by D. Mahony and is described elsewhere (Sutton-Smith, Botvin and Mahony, 1976). It is a system which focusses on the complexity of characters, their actions, their use of space and time, their co-ordinations and their reversibility and their hierarchical organization.

What this means it seems to us, is that the *abstractions* that are produced in the act of playing are more complex than any other abstractions of which the child is capable at that time. This in itself seems to imply logically that they are also in some sense anticipatory, that they are *prototypes* for what is to come in the rest of the child's organizational life. The word prototype was coined by Greta Fein (1975) for the early play of children which seemed to focus just on the essential aspects of the objects played with. What is an abstraction in our structural theory of play therefore becomes a prototype (because it anticipates), in our functional theory of play.

This brings us to the general question of the nature of the play anticipations. If we consider the structural play theory of play as abstraction, reversal and vivification, then it seems to us that the following anticipations are implied.

a. play is a prototype

Play prototypes can be either models of the way society is and therefore envisage *integrative* socialization, or they can be models of the way society might be and therefore envisage *innovative* socialization. We like the quote of novelist Vonnegut when he says, "I am simply impressed by the unexpected insights which shower down on me when my job is to imagine, as contrasted with the woodenly familiar ideas which clutter my desk when my job is to tell the truth." (1965)

b. play as flexibility training

There is plenty of evidence that cognitively speaking play generates novelty. But there is hardly any thinking on what the reversibilities (which we have claimed to be the essential conative mechanisms of play) generate.

Our favorite candidate for this conative outcome is flexibility. As indicated, as we move along a continuum from more sober play to more excited playfulness, the reversals seem to increase in number and quality. Humor or comedy or wit which are species of conversational play, are characterized by lightning shifts in set. One would expect that those who indulge in such play must of necessity be potentially more flexible with respect to the conventions of language and behavior which they upset in order to produce these results. Here again there is little in the way of direct evidence, although for many years play therapists, and psychodramatic therapists have been claiming that as a result of the role playing in which their subjects participate they do become more flexible in their behavior.

Although we have not as yet any direct evidence, we suspect that after each prototype is enacted, the succeeding variations are possible because the mood is one of reversible operating. Beginning with the selective mechanism which tunes out the world and tunes in subjectivity, reversible structures are engendered. It is these presumably which are what we mean when we say a person is able to be flexible. Flexibility is the outcome of the reversible operations of play. Presumably these reversible operations have some predictability by age and socio-cultural group. We presume, however, given the desunchronized labile character of play that their content is virtually random and unpredictable beforehand.

c. play as autonomy training

What is produced by a regime of alternating vivification and euphoria? What difference does it make if we have many rather than few experiences of Csikszentmihalyi's flow experience? Our guess here is that the product of many self-controlled episodes (other things being equal) is that the player potentiates autonomous behavior. He creates in himself the effective state of optimism. In play he is certainly autonomous emotionally. This view is supported by a finding of Nerlove, Roberts et al. (1974) that children's autonomy at play is associated with high scores on the Witkin test of field independence. The latter measure has long been associated with the development of emotional autonomy. Actually this finding takes us beyond proving autonomy is generated in play, it shows that this autonomy is also applied in a test setting and probably has much more general application to other forms of adaptation. Of similar impact is a finding of Morris Stein (1974), in discussing creativity, that there is a documented confidence that artists get as a result of their creations. Perhaps we can talk of the greater optimism that comes to those who play more. who impose themselves upon the world. Many years ago my colleague Ben Rosenberg and I gave Minnesota Multiphasic Inventories to many hundreds of college students and found that those who played less than 5 hours of games or recreations a week were of a depressive clinical profile. Those who played more than 35 hours a week were hysterical. For the majority, in-between play appeared to be associated with healthy self assertion. It is one of the shortcomings of most research on game stimulation that these sorts of affective variables are seldom studied. It might be less important that the game simulator learned as much as the other conventional student than that he gained a persistent and optimistic interest in the subject matter. Similarly it would be our prediction that those who play more will be relatively more autonomous than those who do not. Research on children with imaginary companions, for example, reveals that those who have them are more socially active at school than comparable children who have not invented that solution to their loneliness (Manosevitz, et al. 1973).

d. communitas

In talking of the prototypes, flexibility and autonomy potentiated in play, we have not distinguished social from non-social play. But clearly social play adds special elements that solitary play does not. It is probable that in solitary play or play with close friends novelty and autonomy are generated, whereas in social play we might expect the generation in addition of greater flexibility. In social play *communitas* is also made possible. Victor Turner (1974) points out that in all rites of reversal (of which we have said play is the root form) there is an alteration of the usual social hierarchy. The low are elevated and the high are abased. Further, all those who participate in this liminal area where the usual restraints are removed share a special kinship with each other. At this time the community undergoes a resacralization as a unified entity, despite the structures that segregate it at other times of the year. The Mardi Gras is the faintly surviving expression of this reversal with which we are most acquainted. In modern times, however, play, games and sports seem to exist to fill this role at least in a more specialized way. They do provide a threshold or liminal area of life where new orders of association and relationship are generated by the games.

In sum, we have argued that play as adaptive potentiation is a theory which allows for both the conservative and radical elements of play to be part of its nature. Play generates novelty, flexibility, autonomy and communitas. This is its function in relation to society. But seeing these forms are only generated or made *potential* in play, then a functional consequence is by no means assured. It is the very separation of play from other forms of adaptation, its inherent "triviality" (or lack of work-like serious constraints), that permits it to reach higher levels of complex organization and rehearse responses which are not yet a part of the organism's ordinary adaptive repertoire. How this novel response becomes transferred to everyday adaptation we take up in the next section.

E. The Transfer of the Potentiated Responses

This is the second set of transitions that we have had to consider, and we know about as little or as much in this case as in the other. In the earlier examples of transitions of exploratory activity into play, we gave a primary role to the influence of modelling or teaching. What now ensures us that wishes and fantasies potentiated in play will have any effect on ordinary adaptation? They certainly do not always accord with the way things are. The more imitative forms perhaps do, but the mimicry does not. Play is both possible and impossible. The question that now faces us is how to distinguish between those possibilities that can make the transition back to adaptation and those that cannot. It may well be true that culture originates in play as Huizinga has maintained. But in which play does it originate? We like the anecdote about the ancient custom in which the fool became King for three days in a rite of reversal and could do anything that he pleased. Except that at the end of the three days he was beheaded. On one occasion, however, the King died and the fool became King. Play, in our theory of adaptive potentiation is the fool who might become King and the question we presently ask is how do we know how to tell if and when the King will die?

Novelty, for example, as any teacher can tell you, is not always valuable. If a class is attempting to learn something and their focus on the processes of mastery is disrupted by the idiosyncratic novelties of some of the students, those novelties are of little practical value. They may be hilarious nonsensical or naughty, but they can be quite useless in practical situations. Except, that they may have an indirectly beneficial value in making the child more flexible about that which he is trying to understand. Chukovsky makes the point that one only knows sense who also knows nonsense. "To fully know one's reality, to be master of the world one has built for oneself, one must carry its principles through the extreme, to be able to recognize what is complete nonsense, as well as sense." (1966)

The value of this approach of Chukovsky is its suggestion that the transfer may not be in the *content* of the ridiculous play, but in the underlying flexibility of perspective that it implies. Being able to be ridiculous imples a detachment from the particular circumstances which is itself a valuable competence even though teachers may not appreciate that any more than they did the original playful content. For the researcher, however, it guides our attention to underlying masteries that the play content presupposes, rather then simply to the content itself. In the case of the riddles, for example, in the paper that follows, we see that children master not only certain logical relationships (over which they have recently acquired tentative mastery), but they also master the position of being an intellectual leader in the social group, also an uncertain and unstable acquisition for a seven-year-old. This way of thinking about play has much in common with Bateson's profound point that the most important thing about role playing might not be that one plays mothers or fathers, but that one learns role categories. One acquires autonomous control over what is a role and what is not a role, and over turning it on and over turning it off. Imaginary companions can be envisaged in the same way as the first acquisition of control over a role sector. The imaginary companion is used to play only some behaviors (naughty, regressive, etc.). This implies that the child is now making differentiations between similar roles, the child she is herself versus the child the imaginary companion is. As these arise between the ages of four and seven years when children are busily mastering behavior in public places, the important thing to think of might be the first acquisition of flexibility with respect to differentiation *within* roles. The imaginary companion signals the understanding that not all children play the same role. We have suggested earlier that the work ethic was an industrialist ideology partly geared to suppress novelty, flexibility and autonomy. When routine work must be done, novelty cannot only be irrelevant, it can impede survival. So novelty in puritanic times often became facetiousness or impudence and was not well received.

Significantly, as the need for routine manual workers has decreased there has developed within education new attempts to generate the capacity for symbolic novelty in those children who have not learned this in their homes. In a normal middle class home, the play with parents, toys and books, establishes certain norms of make-believe and pretense. The child who comes from such a home has had some three to four years of make-believe training and is not particularly discommoded when confronted by the requirement that he learn those novel types of make-believe known as reading and arithmetic. But children from the streets with little such association with their parents or with symbolic play enter a school at a considerable disadvantage. There has therefore developed a movement amongst early childhood educators to play with children imaginatively so that the children have models for this sort of transformation of their experience. There has developed as well in some places, toy libraries, and systems of toy talk in which parents are taught how to play with their children through talking about their toys. Where it was once sufficient to suggest that parents read to their children, it is now thought necessary to advocate that they play with them.

Obviously in situations of this sort, and on behalf of regular learning, the surrounding culture is no longer antagonistic to the novelties of play but is actively trying to create them. The focus is usually of a quite restricted sort however, the present emphasis being on imaginary play in particular socio-dramatic play, as it is usually maintained that by encouraging this social form of make-believe, verbal interaction, span of attention and various other valuable school related assets are encouraged.

It is worth noting that the play theories that dominated the first part of this century had a dominantly physicalistic emphasis. Play was rehearsal (Groos) or it was recapitulation of the stages of phylogenetic development (Hall), whereas those play theories that have dominated the second half of the century have been "ideational" dealing with fantasy (Freud), cognition (Piaget) and now make-believe (Smilansky, Singer, etc.). This suggests that there is increasing receptivity in the larger culture for novelty of an ideational sort. Perhaps the earlier receptivity to novelty of a physical sort had much to do with the rise of sports, whereas the present receptivity has to do with the development of more symbolic informational culture. Our general theory of play as a form of novelty learning makes more sense in a society that is moving towards greater informational diversity of every sort. Which is to say that we may be in the middle of a gradual transition from a work ethic ideology that derogates play, towards a diversity ethic or an *innovation ethic* within which play is seen as making a fundamental contribution. It has been the argument of this book that voluntary play is a form of unprogrammed innovation. One of the paradoxes of modern society is that we have not yet formulated the programming of innovation. At a time when novel answers are required for almost every situation, political, international, ethnic, urban, etc., most schools are still programmed only for skill learning, although the movement towards open schools is a recognition of the importance of personal choice and personal growth. Where, we may ask, do we expect innovators to come from, if we do not program for innovation? To date our innovators have arisen randomly from the good luck that some of these have the secret of cultivating originality. In future we may talk much more carefully about the interrelationships between unprogrammed skill training, programmed skill training, unprogrammed play and programmed play. Unprogrammed play is clearly free choice time. Programmed play is a classroom usage of a play approach to material already mastered during skill training. It envisages treating play as relevant, not irrelevant. The notion of "recess" is itself the prophylactic notion that play is relevant to recovery but not to learning. Both the concepts of "recess" and "recreation" involve derogatory notions of the role of play in society. They are outcast mental institutions, about which little need be said, until the person can return to real work, refreshed and sane once more. Of course, given the "insanity" of much of our world it is probable that this type of "insanity" leisure will continue as well as the more cogent forms that are being advocated here.

But, what is being stated here is that whether play novelties make the transition to society depends on the development of new ideologies of play which are more accepting of such novelty. The material being discussed and the analysis of culture offered, seem to imply that such a new ideology of play as a contribution to human innovation is in the offing. Along the same lines are the theological views of play as a sacred event. We have the heretical suggestion by some theologicans that as God was only creative when he played, man is only truly sacral when he plays also. Calvin might turn in his grave at such a suggestion. The notion of God creating the Universe in seven days is certainly consistent with the summarized and speedy nature of play. It also was a vivid piece of action (Miller, 1969).

It would appear that unlike play, both games and sports have a better chance of making it back to society all by themselves. There is evidence that the activities of the juvenile culture even amongst primates provides a sphere of experimentation with behavior that can lead to novel adjustments by the group as a whole. There is report from an animal study of new eating habits being developed first by the juveniles and then being adopted by the adults (Teynolds, 1972). In human society it appears as if the games of the juveniles may have been the source of some modern sports. Certainly we know that the games played by the boys of Rugby were taken over by the teachers and organized into a system of discipline, then later converted into near religious ideology by the novel "Tom Brown's Schooldays" (McIntosh, 1963). When the English national schools were first formed, parochial fighting was rife. Any game which could convert the antagonists into two (instead of many groups) was indeed a useful invention.

In this area of discourse, as in play, we must suppose that the novelties generated are overproductive. There is much that is created which remains only as a play form and, therefore, as play dialectic. Presumably only occasional forms are taken up and made a part of the leisurely pattern of the larger culture. The modern use of sports for commercial purposes means that sports innovation is a systematic technique for developing and controlling audience preferences. Here the rules and conduct of games and television shows are manipulated in order to more adequately produce those moments of vicarious vivification which are associated with lucrative business or patriotic national identification. Whether we like it or not, sports manipulated in this way contribute to the culture and demonstrate the adaptive transfer of play.

In sum, play exists outside of culture creating satisfaction for the individual about his own culture by representing all his feelings vividly but also creating potential responses which may change the nature of the culture of which he is a part. For although play may reverse certain major socialization pressures, it is only apparently outside culture. It is within culture, but in the productive sense of having special functions of its own, other than simply mirroring the major trends of the culture of which it is a part. As we say in the article on order and disorder, it is proto-structure, not just anti-structure.

At this point, however, we should reiterate that play may potentiate integrative or innovative responses. It must be supposed that in most traditional societies, most of which is potentiated is quite integrative. When games were often a part of religious festivals, it is unlikely that there was much that was innovative in the proceedings. The game exists to symbolize and develop optimism about the nature of the particular cultural-metaphysical reality with little thought of change. Although we would maintain that the very combining together of new alternatives in the games introduced an underlying flexibility which always had the potential for change if a revolution should occur, or the King should die. Whether the culture intends it or not, the game imparts more novelty, flexibility, autonomy and communitas than would otherwise exist, but throughout most history the application of these strengths has been used for the purposes of the status quo. When the old Australian aborigines wrestle with the young men for the possession of the doll which is the symbol of the young women, they allow a conflict between old and young to be stated. They do not change the custom of prior access of the old men to the young women. Instead they create a communitas of old and young which binds them more closely together in the way things are. However, once again we suggest, that if new upsetting cultural conditions are introduced, some of the more conflicted young men will use their game provided insight to introduce alternative social behaviors.

In modern times, however, when culture is constantly in change, then the contribution of play to cultural innovation may have a relatively more important role. The ratio of integrative to innovative contribution presumably covaries with the degree of social change.

We may summarize this section on the consequences and, therefore, functions of play as follows:

1. Classical theories of play consider its function to be curative rather than formative.

2. Modern socialization theories have emphasized the way in which play integrates the individual into society, but have paid little attention to its inversive elements.

3. Newer research indicates that play is linked to the development of novel responses and apparently, therefore, to creativity.

4. The function of play may be interpreted as that of adaptive potentiation. Within play the child reaches a level of mental and behavioral organization which anticipates that which he may show later in other areas of adaptation.

5. As anticipatory, play provides prototypes of behavior which may be either potentially integrative or innovative in their implication for future behavior. Such cognitive prototypes imply a conative flexibility and an affective autonomy. Social play implies communitas.

6. Whether these by products of play transfer to other forms of adaptation is what determines their extrinsic functioning.

7. The ratio of integrative or innovative contributions of play to cultural adaptation covaries with the rate of social change.

8. While the dialectical structure of play arises from its synthesis of pre-existing conflicts; the synthesis itself may be considered as a new thesis with respect to the way the world might become. In this section we have emphasized that this thesis is not necessarily accepted or taken seriously by the rest of the world, so that a new state of conflict exists between the wishes of play and the realities of everyday life. The concept of adaptive potentiation deals with the formulation of these new theses in relationship to the external world (novelty, flexibility, etc). Unfortunately at this point, as we have stressed, we know very little about the *adaptive dialectic* by which some of these new conflicts are transcended in new forms of adjustment. A full theory of play, however, is required to discuss this adaptive dialectic as well as the *ludic dialectic* described in the prior section.

Conclusions and Implications

It has been a major empirical aim of this work to demonstrate that the term play has been used loosely to put many things into one category that should be kept distinct. We have attempted to separate antecedents from structure and structure from consequences. Within these categories we have dealt with many variables which are relevant to play, such as exploration, stimulus redundancy, security, social power, play signals, modelling, abstraction, reversal, vivification, integration, innovation, novelty, flexibility, autonomy and communitas. It has been our suggestion that many of the classical theories of play have focussed on one or another set of these variables and have provided in consequence only a limited if not always totally false picture of the subject matter.

It has been demonstrated that play exists in a network of both intrinsic and extrinsic relationships and that it is not possible to explain play solely on the basis of one of the other set. They interact. Play has its own dialectic, but the development of this dialectic, its amplitude or reduction, is intimately connected to specifiable sets of extrinsic variables.

We have provided two definitions of play, one for the intrinsic circumstances (the dialectical structure) and one for the extrinsic circumstances (adaptive potentiation). The intrinsic function of play involves an autonomous synthesis of the not fully mastered normal arousal and reductional tensions in the player's life, that is, those unmastered behaviors which he strives still to master. The extrinsic function of play involves the potentiating of novelty, flexibility, autonomy and communitas. As we have seen these potentiations may or may not transfer to other forms of cultural adaptation. When they do then that becomes the extrinsic function of the play or game.

In order to provide a more adequate theoretical synthesis of the structural and functional theories, however, in this conclusion we would also like to suggest that what may underlie the potentiation of novelty, flexibility, autonomy and communitas is the more basic *acquisition of* *reversible operations*. That is to say, we can argue that the extensive experience of dialectical relationships in play leads primarily to the mastery of reversible operations, and it is these operations that have potential for transfer to other cultural functions. It is because perspective can be so easily reversed in play that novel associations can be made, other roles easily taken, emotional confidence engendered as well as collaborative associations formed. This reversibility is experienced at first in play as the control of affective arousal and reduction, that is, the very control of emotional life itself; and then it is experienced in games as the control of role reciprocities and role reversals.

If we follow this line of theoretical thinking and subsume the various other elements of play, then we can provide a new definition of play which is a succinct synthesis of both our prior structural and functional definitions always remembering that all that has been said before is implied in the following few brief terms:

> *play is that voluntary action which has a dialectical structure and which potentiates reversible operations.*

The account of the rise and fall of tension, and of the reciprocities and reversibilities between players, who engender order or disorder, approach or avoidance or success or failure, contributed to our understanding of the way in which plays and games rise above these separate elements and bring together what is usually apart. This was our account of the intrinsic structure, the dialectical structure of play. But now we add to this the view that the constant synthesis of such reversible states provides the child with a novel experience of reversible operations, and potentiates in him a readiness for the application of these to everyday life. When such an application occurs, and the play possibility becomes a reality, then we have an example of the extrinsic functioning of the game. At the same time we have the play thesis, being integrated in some new way with everyday reality, and that novel synthesis is itself a dialectical operation, although of an adaptive rather than a ludic nature, because the play has now become the reality. And so across our three sections we have first the assertion of conflict in everyday existence, then the transcendance of this in the ludic dialectic, and then, on occasions, a situation where the potentiated reversible operations lead to a new integration with or innovation in the world as it is, which is an example of adaptive dialectic. Across all three, we perceive that the three states of *non-play*, *play* and then *non-play* again, have at least a potentially progressive dialectical character. The dialectics of play are both ludic and adaptive.

This way of looking at play, if useful, would dictate some new goals within play research. What would happen for example, if each time we observed play, we attempted to answer the questions (a) what is the uncertainty, conflict or unmastered tension of everyday life that is synthesized in a dialectical way in this episode of play? Remembering that we use the term conflict for the quite normal arousals and reductions which the child reaches to master, but has not fully mastered. These are what John M. Roberts and I have termed "benevolent conflicts" to distinguish them from the traumatic conflicts dealt with in Freudian theory, which impede rather than promote play. Only when the play therapist can reduce the anxiety associated with traumatic conflict, can its elements be introduced into the child's play. Observation of play along these lines should look for the underlying conflicts that the child seeks to incorporate in his play. These may derive from the physical enviroment (to be powerful or powerless), physical objects (to control or not to control them), from people (to approach or to avoid). A full account of the development of play requires a parallel account of the unmastered competences towards which the child strives and about which he is in conflict. (b) the study of play itself should focus on the particular way in which the conflicts of life are resolved in the contraries of play. What is the particular rule structure that allows this binary operation to function? In articles in the section on Readings, examples are given of the binary operations in games of order and disorder, in riddles and in games and sports in general. Probably the best heuristic for the analysis suggested in (a) above is to begin with the evidence from play itself and work back to what the underlying conflicts might well be, although these would in due course have to be validated by some independent means of assessment. There may be considerable value also in attempts to record the parameters of excitement within play and games. These affective structures and the players management of them probably provide a forecast of their affective competences in general. Also the schedule of play type reversals outlined in the earlier sections need considerable expansion. Again, the relationship between the play abstraction, the subsequent repetition, the variations and the exaggerations is still not entirely clear. The extent to which repetition is variation, variation is exaggeration, or exaggeration is tension arousing or reducing is not established. (c) Finally, we need to know what it is that transfers and whether that transfer is best discussed in terms of reversible operations, or as novelty, flexibility, autonomy or communitas. To which circumstances are these concepts most relevant? What are the receptive circumstances that permits the transfer (or as we prefer, the new synthesis) to occur? In an article on riddles, for example (1976) we suggest that what transfers is probably the rule that homonyms and not synonyms. Whether the content of the riddle transfers is not important.

While this work has been concerned with the analysis of play and games and not with their implications, the general approach taken here does have profound *implication* for social science and education, and by way of conclusion a few of the more obvious of these implications should be drawn here. If play is anticipatory in the ways suggested it becomes a primary route to understanding and anticipating the future life of the child. It becomes a critical focus for social science. Although the relationship of the play prototypes to subsequent adaption is only probabilistic, we might expect that there would be much higher correlations between such living behavioral anticipations and future behavior, than we usually get between past habits of success (on tests) and future behavior, the more usual way in which we predict human behavior. Though, as we have seen, the degree of the relationship between potentiation and adaptation also depends on community receptivity.

Those cultures that *permit* play to occur at least clandestinely, but at the same time instruct children *not* to play, implicitly would appear to teach the importance of flexibility in the secretive areas of the mind. They prepare a repertoire of people who are ready to reverse things if the occasion warrants but mostly act as if everything should proceed in a normal and conventional way. In those places where adult roles are static and choices are impossible, then adults may seek to reinforce monolithic conformity and to exclude play. If there is no scope for choice there is no use for play. Play implies you can move from one alternative to another. When life does not reinforce that view, it is unlikely to sustain or to model the exercise of choice in play. Where choice and insight is necessary, then play opportunities should increase and more members of the culture be equipped with the radar-like reversible capacity to consider alternatives. Such individuals would presumably be more capable of novelty and more confident of their capacity to generate it either in solitary or social ways.

In those cultures that encourage innovation, much thought is needed into the ways in which play can be introduced into the school curriculum. Learning without play is a non-flexible skill training, useful only for the routine discharge of function. Play takes many forms. There is the totally free time or recess time that all of us need to preserve the distinctiveness of our own play making. Without that we cannot deal with the problems that are critical and nearest to us. But there is a curriculum usage too. All skill training needs to be followed by play training. In play training, matters taken seriously beforehand may now be taken non-seriously. Spelling might be followed by lunatic spelling, at least as long as anyone can come up with sufficiently amusing idiocies to keep the group entranced. In the play period the art of playing one's way into other perspectives should be encouraged, so that the depth and flexibility of all knowledge is increased. The problem for the more staid teacher, of course, is that such play periods will breed more creative, flexible and autonomous students who may wish to have a say in all the choices that are to be made. This may be a problem for those who wish to leave the world alone. Play is ultimately that denial of rigid commitment which in its own personal optimism and enthusiasm makes a new and more flexible commitment conceivable. It is clearly very important for a world in which such alternatives are possible.

III. METHODOLOGY

Introduction

While each methodology is dealt with separately in the various studies that are presented below in the results section, several specifically methodological studies were a part of the present research and these will be dealt with here. It should be mentioned that all of the present studies, unless otherwise specified, were carried out in PS 3, New York with the support, encouragement and input of the principal John Melser. This school on Hudson and Grove in the Greenwich village area is generally considered to have many parents of a professional sort (actors, advertisers, etc). However, in the one replication study in which the Mahony scale was used with a lower status, largely working class, Long Island group, the results were as expected. The scale discriminated between age levels although the lower status group had higher scores at the lower developmental levels. This finding is not unlike one of an earlier year when an original group of Teachers College upper professional children from Agnes Russell school were used to set up age differentiations in improvisation behavior: the findings for that group were easily replicated by Gilbert Lazie on a normative sample in the Tallahasee laboratory school at the University of Florida. In the latter case also the children's improvisations were of shorter duration (as the Long Island children's stories were shorter), and more children were at the lower parts of the scale. Still the age differentiations held up for both groups.

As most of the work has been done with children's stories, most of our methodological research centers on the issue of the storytaking itself. In the paper by Petersen, "Constraining the Child's Storytelling Situation...etc", it is clearly established that storytaking under different stimulus conditions (free, pictureor Rorschach) has a pronounced effect on the developmental level of the story received. Although we have not yet systematically researched the matter, it is our general impression that children tell stories more fluently to a tape recorder than when they must be written down either by themselves or by the storytaker. They sometimes tell stories more fluently when other children are present, sometimes more fluently when they can take the recorder off to some private spot by themselves. But these are matters for further study.

In two studies of the effect of the storytaker him or herself, we have found different effects. In one brief study by Tom Stevens and Marylou Caring we found no effects of the storytaker's sex on the Maranda level of the children's study. However in another study, also by Petersen, below entitled "The Effect of the Storytaker's Sex on Stories Children Tell", it was found that male storytakers seemed to encourage more fantastic as compared with realistic elements in stories that were told to them by both boys and girls. Putting this finding together with the one in the Marylou Caring dream and story comparison earlier, we suggest tentatively that experimenter effects do not affect structural level of the stories, but they can affect story content. However, when we remember that stimulus differences can also affect story structural level, as in Petersen's study, the complexity and variety of presentation effects is clearly demonstrated and a cautious examination of these factors advised.

Paper #2.

The Effect of the Storytaker's Sex On Stories Children Tell

Leland W. Petersen

Abstract

This study explores the effects of *E*-sex on various aspects of children's free-form storytelling -- thematic content, level of fantasy, and degree of sexual/genital explicitness. One hundred and fifty-five middle-class *Ss*, divided approximately equally by age (5-6, 8-10), sex, and storytaker sex were asked to tell stories to familiar experimenters. First oral fantasy productions were analyzed by chi-square and 3-way ANOVA, depending on the levels of measurement. *E*-sex was found to have a main effect on level of fantasy (male *Es* prompt higher fantasy) and to interact minimally with *S*-sex and age with respect to thematic content. Results are discussed in terms of heightened competitiveness and anxiety, possible drive reduction, and the use of fantasy as both a distancing and a reaction-formulation type defensive maneuver.

E sex has been known to affect experimental results at least since Coffin (1941). Since that time, effects have been reported on phenomena as varied as rat maze behavior (Kintz, et. al., 1965), children's lever pulling (Stevenson and Odom, 1963; Stevenson, Keen and Knights, 1963), projective measures of girls' sex-role preferences (Doll, et. al., 1973), and adult creative problem solving (Gall, 1966). Still, despite considerable attention to the possible effect of E sex throughout the 1960's (notably Rosenthal, 1966; Rosenthal and Rosnow, 1969), Silverman (1974) and Harris (1971) both report little change in others' reporting (much less analyzing) E sex.

One potentially important research area in which to examine the E sex effect is the projective-type material of children's storytelling. Judging by the sheer volume of literature, children may be particularly prone to E sex effects -- although research thus far largely emphasizes simple motor responses (Stevenson, 1961, 1965; Stevenson and Odom, 1963; Stevenson, Keen and Knights, 1963; Breyer, et. al., 1972) and aspects of intellectual functioning (Parish and Wheatley, 1973; Cieutat, 1965; Cieutat and Flick, 1967; Ziv, 1972). In addition, one could hypothesize from the literature on E sex effects on projective materials -- primarily in adult stories dealing with sexual explicitness (Milner and Moses, 1974; Walters, et. al., 1962; Murstein, 1963) -- that projective-type tasks could be most easily contaminated by E sex effects.

Meanwhile, children's stories -- either spontaneous or requested in the most free-form fashion -- have been variously analyzed in order to test theories of psycho-social development (Pitcher and Prelinger, 1963); to assess neurological functioning of the frontal lobe system throughout early development (Pontius, 1974); to reveal core personality dynamics (Gould, 1972); and to chart aspects of intellectual development (Taylor and Glazer, 1973) and mythological competence (Sutton-Smith, 1975). In none of these studies has any possible E sex effect been mentioned. However, given the potential importance of children's storytelling to various lines of psychological and educational research, and to proposed educational encouragement of creative development (Sutton-Smith), it is important to determine whether the well-documented effects of E sex play any significant role in the kind of story a child chooses to tell.

This study proposes to analyze the effects of the storytaker's sex, therefore, on the child storyteller's narrative production. Three rather different measures represent major dimensions of the accumulating research on children's narrative fantasy, on experimenter-sex effects, and on subject-sex differences. The experimental design also includes age as a factor so that developmental differences may be examined for any interactive effect with E sex. Although previously reported research affords little solid framework for prognosticating effects of E sex on these various measures, some general predictions are in order because of the wide variety of experimental tasks in which E sex differences have been reported with children. It might be predicted, for example, that there will be subtle but consistent differences on all three measures attributable to E sex simply because other cognitive tasks have been found similarly affected. It might be further expected that E sex x age interactions will reveal E sex effects to be less pronounced with younger children than with older on at least some measures -- this prediction based largely on similar results with motor-skills tasks with a variety of populations (Stevenson, 1961; Rosenthal).

In addition, since middle- and late-latency-aged children have tended to respond more energetically to opposite-sex experimenters (explained variously as heightened desire to please or an "active Experimenter effect resulting from differential treatment to opposite-sex subjects), one might predict similar increased energy with opposite-sex *E*s on the realism-fantasy measure: i.e., greater fantasy levels with opposite-sex *E*s. With the other two measures it makes little sense, however, to predict how any increase in energy might affect results.

METHOD

Subjects. Stories from 155 *S*s (storytellers) ages 5-6 (N=79) and 8-10 (N=76) were included in this study. Male (N=73) and female (N=82) subjects were divided approximately equally between age groups and between male and female *E*s (storytakers) within age groups. Although Ns were unequal, each of the eight cells in the age group x *S* sex x *E* sex design contained no less than 16 and no more than 22 observations. (See Table 1.)

Insert Table 1 about here

Storytellers were drawn from two similar middle/upper-middle SES school environments. One was a private kindergarten in New Haven, Connecticut, the other an open-classroom-variety public school in a relatively affluent Manhattan neighborhood. The Connecticut kindergarteners (5 y.o.) comprised somewhat less than half of the younger age groups, while the older groups were comprised entirely of the New York school children. Children in both settings were typically from professional or well-educated families.

Experimenters. All except two storytakers/experimenters were Teachers College graduate students participating in a federally-supported study of children's expressive development. The two exceptions were both more senior people in academic psychology: the Teachers College faculty director of the New York research project (Sutton-Smith) and the well-established Connecticut professional (Pitcher) who gathered all of the Connecticut stories for a separate study 15 years prior to the New York study (Pitcher and Prelinger). All storytakers made extended efforts to establish classroom and playground rapport with their storyteller populations before eliciting any stories from individual subjects.

Procedure. Stories were elicited from children with the simple, unstructured request to "Tell me a story." Stories were recorded verbatim, in writing, as they were told. Once a story was begun, interventions by *E*s were limited to encouragement (when appropriate) such as "And then what happened?" or "And after that?" No child was ever forced to tell a story; since both series of data collections continued more than a year, there were many chances for any one child to feel comfortable enough to create a story. Through the duration of both studies, however, virtually every child in the selected classroom populations told at least one original story.

Sampling. Stories included in this study were systematically selected from two much larger collections, one available to the general reader (Pitcher and Prelinger) and one to be published at the termination of the

New York study (by Sutton-Smith). Sampling was guided by several restrictions: (1) only one story per child; (2) each child's story must be original -- i.e., not a stereotyped re-telling of some traditional story like Little Red Riding Hood; (3) the story selected had to be the *first* original story a child told to any one of the *E*s during the course of the two studies; and (4) each story had to be dictated to the *E* rather than have been collected as a written story for some group exercise. Adhering to all four restrictions required considerable cross-checking within both story collections, and some potential *S*s had to eliminated entirely when there was a real question about any one of the restrictions (particularly the oral vs. written requirement). As a result, the original intent to collect data for equal cells of 20 each was not quite realized.

Scoring. The three dependent variables -- Sexual/Genital Explicitness, Realism-Fantasy, and Villany-Lack -- required three different systems of scoring, only one of which was original to this study.

Sexual/Genital Explicitness was scored on an original 5-point scale requiring little more than a simple count of sexual/genital references. (See Table 2.) Beyond this simple numerical tabulation, two kinds of scoring judgments are potentially required by the entire 5-point system: definite sexual/genital *implication* rather than explication for a 2-point vs. 3-point scoring; and sexual/genital "main focus" for 5-point vs. 4-point scoring. Scoring criteria were made as explicit as possible in order to minimize probabilities of vague decisions. (In actuality, there were so few sexual/genital references of any kind in this sample that only the "implication" judgment was required, and that in only two or three clear instances). Because of the objective character of this scale, for all intents and purposes, reliability was judged to be acceptable.

Insert Table 2 about here

Realism-Fantasy levels were scored according to the scale developed and used by Pitcher and Prelinger (See Table 3). Reliability for this scale was reported to be quite acceptable, and the scale was found, by this researcher, easy to use in practice.

Insert Table 3 about here

Villany-Lack was scored by the criteria developed by Sutton-Smith (1975). (See Table 4.) Again, this system was found easy to use by this researcher, and any stories which could not decisively be classified as either Villany or Lack were classified as "Other." Stories typically classified as Other, however, were those in which there was no single major theme to score or in which the major theme included no narrative tension (e.g., friendship stories).

Insert Table 4 about here

All scoring was done by researcher. In order to ensure minimum bias, all stories were cut apart, with coded identification hidden, and drawn randomly from a bag for individual scoring. Scoring could then be accomplished without knowledge of *Ss'* age or sex. *E* sex was separately recorded by *Ss'* code numbers and was never transcribed to scoring sheets until all scoring [illegible] completed.

Design. The design of this study is a 2 x 2 x 2 (Age group x *S* sex x *E* sex) factorial design with three dependent variables (Sexual/Genital Explicitness, Realism-Fantasy, and Villany-Lack). A three-way ANOVA was planned for analysis of the Realism-Fantasy data, while non-parametric chi-square analyses were planned for the Explicitness and Villany-Lack data.

Ns for Age group, *S* sex and *E* sex were approximately balanced for each cell. To further simplify results, it was attempted that every cell of the design generally have just two storytakers accounting for nearly all the observations therein. Although precision was not possible because of the nature of the sample, in no case were there more than three major storytakers represented in a cell. In all, of the seven male storytakers, four accounted for 68 of 73 stories; and five of the eight female storytakers accounted for 77 of 82 stories.

RESULTS

Explicitness data assumed such a skewed distribution that meaningful tests could only be performed by collapsing cells.

Insert Table 5 about here

Even with collapsed cells for those explicitness scores greater than one, all three major tests (*S* sex, *E* sex, Age) produced minimal values -- the largest being = 1.09, df=1 for the *S* sex 2 x 2 contingency table.

Insert Table 6 about here

In addition, a survey of explicitness scores broken down by individual storytakers indicates nothing more than a random distribution of the five scores in the range 2-4.

Because the scorings for Realism-Fantasy were designed to approximate interval measurements, it was felt a parametric test could be justified. A three-way ANOVA revealed a significant main effect for *E* sex, with no significant interactions.

Insert Table 7 about here

(The less-powerful, but indisputably valid, nonparametric test corroborates this finding when cells are collapsed to form a 2 x 2 contingency table with Realism-Fantasy scores of 1-3 and 4-5.

Insert Table 8 about here

Here, = 3.98, df = 1, p .05. Similarly, no combinations of conditions produced any pattern of statistics revealing interaction effects.

To rule out the possibility that these Realism-Fantasy findings were confounded by differences between the New York and Connecticut populations employed in this study, a was computed for the appropriate 2 x 2 contingency table (using collapsed cells, as above). The resultant (1.0) clearly confirms the homogeneity of the two populations for this variable.

Chi-square analyses of the Villainy-Lack data revealed that there was no significant effect for either age or storytaker-sex, but results were significantly determined by the subjects' sex.

Insert Table 9 about here

Excluding those "other" stories (which typically have no elements of thematic tension), the resultant four-fold table produces a of 4.96, df = 1, p .05. Further internal analyses of these data do suggest, however, that some qualification be placed on this general S sex finding. While boys told one and one-half to two and one-half times as many villany stories as lack stories across both age groups and both E sex conditions, girls exhibited the reverse phenomenon in all conditions but one: young girls confronted with female storytakers were inspired to tell nearly twice as many villainous tales as tales of lack or deprivation. (It is possible, because of the unavoidably uneven nature of the sampling in the female E sex cells with the young subjects, that this reversal is due more to the individual effects of the one major storytaker for that cell than to some more general effect. In fact, Dr. Pitcher gathered 19 of the 22 stories for the cell in question, with a Villainy-Lack-Other distribution of 9 - 4 - 6, while another storytaker gathered the remaining three with a distribution of 0 - 1 - 2. Itis also possible that Pitcher's Connecticut population differed for the New York population for that one cell. Both of these explanations seem unlikely, however, because inspection of data for other cells shows no discernible patterns of a similar nature. No other combinations of conditions produced any patterns of statistics revealing interaction effects, and inspection of the data revealed no discernible differences between the New York and Connecticut populations in addition to the one possibility cited above.

Data for all three measures was also inspected for evidence of possible systematic differences between storytakers. With the exception of the one cell discussed above, there were no major systematic variations discernible -- either for individual cells, for age or sex conditions, or the entire sample population -- which would have affected results in some fashion contrary to those major trends already discussed.

DISCUSSION

Experimenter sex was found to be significant in two rather different ways. On the one hand, sex of the storytaker was responsible for a main effect in the levels of fantasy reached by all these children: male storytakers elicited higher levels of fantasy across all conditions of age and storyteller sex. On the other hand, *E* sex showed only a small interactive effect when considering the trend for boys to tell tales of villainy and girls to tell stories of lack and deprivation; early-latency-age girls tend to tell more villainous tales when confronted with a female storytaker. No *E* sex effects were found for the explicitness measure, nor for any other aspect of the fantasy-level and thematic measures.

Consequently, the hypothesis that *E* sex would have subtle, but pervasive effects across all measures must be rejected in favor of a more restricted notion. Predictions -- based on others' results with different kinds of tasks -- that *E* sex would interact with age or with sex for consistent effects must be rejected totally for these measures of first fantasy tales.

And how can one explain the two *E* sex effects which were observed in this sample? Just why, for example, male storytakers should prompt higher fantasy productions -- or more energetic performances -- is not readily apparent. Explanations for such phenomena with older subjects typically focus on subjects' heightened anxiety or increased competitiveness when confronted with male experimenters. Since the two often go hand in hand in children's relationships with adults, arguments could certainly be made for both explanations: adult males are still, by and large, viewed as higher-order authority figures and powerful instigating agents for all sorts of special and/or time-limited activities: they are, therefore, figures who could inspire both competition and anxiety in these youngsters deeply absorbed in what Sutton-Smith describes as the developmental task of deciphering and negotiating life's power relationships.

In the face of such a powerful person-stimulus, then, youngsters mobilize their energies and fantasy resources as ways of evincing fantasy powers competitive with that ascribed to the adult male. In part, of course, the ascription of such power is based on actual powers they've seen demonstrated around home and school; but power is undoubtedly also ascribed simply because men usually go off to mysterious jobs in a mysterious world beyond home and classroom.

But competitive feelings are often accompanied by anxieties -- particularly in children at most one step removed from intense oedipal competition and its attendant emotions. When faced with an assumedly-powerful male, then, latency children have few ways of quelling the anxieties which result from the welter of negative emotions aroused within -- particularly in the unstructured, yet demanding, setting of "Tell me a story." High-fantasy productions provide one means of controlling those unsettling emotions, and the method has the added advantages of being particularly appropriate to the task.

By what mechanism fantasy acts to control aroused anxiety is a hotly debated topic among todya's professionals. Much of the child mental health field is based on the Freudian notion of catharsis and drive reduction in a simple energy model. Singer (1966, 1973) is one of many who have challenged the simplicity of such a theory, suggesting for instance, that predisposition to inner awareness and fantasy need be added to the energy equation. Future investigation would do well, in fact, to include a measure such as Singer's fantasy predisposition, for it might help explain why many children did *not* tell high fantasy stories when faced with an adult male storytaker. Singer's notion would seem to offer additional explanatory power to Rosalind Gould's idea of fantasy as a first line defense -- a distancing mechanism -- when children begin to experience their own negative emotions towards an adult.

The other area in which *E* sex was found to exert any systematic influence was in interaction with age and *S* sex in eliciting villainous tales vs. stories of lack and deprivation. With the exception of this finding that 5-6 year old girls tell more villainous stories to female *Es*, this study provides substantial corroboration to Sutton-Smith's study and his assertions that the differing cultural messages to boys and girls channel them systematically into tales of independence or dependence/affiliation. Assuming the present study's finding is not artifactual, it could be argued that 5-6 year old girls are still enough influenced by residual oedipal-period struggles that adult females cause a resurgence of security-threatening emotions, particularly when that adult female is intimate and demanding enough to ask for the creation of an original story. The result would be an experience of anxiety over threatened loss of love and over the reality of the youngster's dependent status, which anxiety then prompts stories of villainy and conquest as a kind of flight reaction or defensive reaction formation.

Whenever one finds experimenter effects, Rosenthal's notion of active, versus passive, effects should be considered. Although future studies might want to control for such a possibility, the pattern of results herein do not easily suggest confounding by active experimenter influences. It would be hard to explain, for example, how the experienced, enthusiastic men who served as *Es* in this study covertly coaxed for higher fantasy productions from boys and girls of all ages than did the experienced, enthusiastic women *Es*.

Lastly, it should be remembered that this study limited itself to first fantasy productions. Longitudinal data might well find very different *E* sex effects since it has been demonstrated that children do improve in their storytelling abilities and enthusiasm over time (Sutton-Smith). Of course, as children become more comfortable with both medium and method, they will loosen up, become more daring, and perhaps more creative. For instance, even a cursory perusal of Sutton-Smith's two years' worth of stories suggests that sexual and genital references become far more common amongst veteran storytellers than was found in these first stories. Whether or not such 'loosening up' is systematically affected by the sex of the storytaker remains for future investigation.

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TABLE 1

Distribution of Subjects

	Subjects (N=155)				
	Male (N=73)		Female (N=82)		
Age Groups	Experimenters		Experimenters		Total
	Male	Female	Male	Female	
5-6	16	20	21	22	79
8-10	19	18	17	22	76
Total	35	38	38	44	155
	73 (Male E)			82 (Female E)	

TABLE 2

Scale of Explicitness Scorings

Scoring	Criteria
1	No explicit sexual/genital references, nor is any definitely implied.
2	Sexual/genital references definitely implied but not made explicit.
3	Sexual/genital references explicitly mentioned in one or two discreet instances. (An instance is discreet if it is not part of a chain of identical, or near-identical, references. For example, a story character shouting "Penis! Penis! Penis!" would be scored for only one explicit reference.)
4	Sexual/genital references are explicit in three to five discreet instances, but sexuality/genitality is not the main focus of the story.
5	Sexual/genital references are explicit in six or more instances, and/or sexuality/genitality is the main focus of the story.

TABLE 3

Scale of Realism-Fantasy Scorings

(from Pitcher & Prelinger, 1963)

Scoring is based both on content items and on relations or events between content items.

Scoring	Criteria
1	Realism dominates completely -- events are concrete, well-defined, appropriate, and logical.
2	Realism dominates, but with some occasional imaginative or illogical events happening.
3	Realism and Fantasy in approximate balance.
4	Fantasy predominates, but with some realistic trends present.
5	Fantasy dominates completely -- figures and events altogether imaginary, having no counterpart or possibility in reality.

TABLE 4

Scale of Villainy - Lack Scorings

Scoring	Criteria
Villainy	Story has a major theme reflecting some state of anticipated or actual attack: e.g., chase, attack, capture, trap, hate, eating, scaring, deceiving.
Lack	Story has a major theme reflecting some state of deprivation: e.g., loss, hunger, impotence, sickness, wishfulness.

TABLE 5

Distribution of Explicitness Scores

	Score					
	1	2	3	4	5	Total
f	150	3	1	1	0	155
%	96.8			3.2		100.0

TABLE 6

S Sex X Explicitness Contingency Table --

% of S Sex Groupings

Explicitness Scores

	1	1	N
Male Ss	94.5%	5.5%	73
Female Ss	98.8%	1.2%	82
N	150	5	155

TABLE 7

Realism - Fantasy Scorings: Three-way ANOVA

Factor	Mean Sq	F (1,147)	p
Age group	0.101	0.073	n.s.
S sex	0.255	0.185	n.s.
E sex	5.857	4.244	.039
Age x S sex	1.163	0.843	n.s.
Age x E sex	1.0009	0.731	n.s.
S sex x E sex	1.124	0.814	n.s.
3-way	1.114	0.807	n.s.

TABLE 8

E Sex x Realism - Fantasy Contingency Table:

% of E Sex Groupings

Realism-Fantasy Scores

	1 - 3	4 - 5	N
Male E	33%	67%	73
Female E	50%	50%	82
N	65	90	155

TABLE 9

S Sex x Villainy-Lack Contingency Table:

% of S Sex Groupings

Villainy-Lack Scores

	Villainy	Lack	Other	N
Male S	52%	27%	21%	73
Female S	29%	40%	30%	82
N	62	53	40	155

Paper #3. Excerpts from: Constraining the Child's Storytelling Situation: Does it make a Difference.

by Leland Walters Petersen

A Ph.D dissertation
Columbia University, 1976

Excerpted here are selections from the Design section and Results of this thesis.

ABSTRACT

Several strands of theorizing and research are seen to suggest a relationship between unconstrained play situations and developmental complexity of play and fantasy. In various playful settings, investigators have measured degrees of associative fluency, thematic fluency, abstraction in representational action sequences, and even pure recall: findings suggest that minimizing the constraints on play situations produces facilitative effects on each of these measures. It was hypothesized therefore, that varying the degree to which one structures (i.e., constrains) a storytelling situation should likewise serve to produce systematic variations in developmental complexity of story structure, without affecting story content. Degrees of structure/constraint are defined largely on the basis of the psychodiagnostic literature on projective techniques.

Content is subject to its own kind of constraints in play/fantasy situations, constraints quite different from those of situational structure. Although constraints of content have not been diverged from those of structure in related research, there are indications -- again in the psychodiagnostic literature -- that content constraints should affect manifest content without affecting structural complexity. It was hypothesized that content effects could be seen with respect to manifest psychosocial content, and the effects would adhere to predictions based on Erikson's epigenetic theory.

Ninety-six eight and nine year old middle/lower-middle SES children told three stories apiece in a repeated measures design including sex and storytelling condition as main factors. Run individually, subjects told one story in each of three counterbalanced conditions which varied in degree of structure/constraint imposed upon the storytelling: freeform condition (no structure); a moderate-structure condition using inkblot stimuli; and a high-structure condition with picture stimuli. Four variations were presented within the sample population, each picture normed to pull content representative of one Eriksonian psychosocial crisis level from stages two to five. As such, content pull ranged from clearly one stage below to one above the group's expected psychosocial norm.

Stories were scored for structural complexity by a method derived from Piagetian notions of reversibility, conservation, and coordination. They were also scored for manifest psychosocial content using a checklist developed from Erikson's theoretical explications. Measures of verbal ability and novel play behavior/experience were also obtained.

Results corroborate the hypothesis that the least-constrained situation (no structure) elicits the highest developmental complexity, but the inkblot and picture conditions produced results in reverse of expectations: i.e., picture stories were more developmentally sophisticated than inkblot stories. The inkblot condition also, unexpectedly, produced significantly-lowered psychosocial content scores, although variation of structural constraints otherwise had no content effects.

Content was affected in the hypothesized manner by variations of stimulus pull: lower-than-age-appropriate pull elicited lowered psychosocial scores, but higher-than-age-appropriate pull did not produce higher overall scores. Content variations had no structural effect, as predicted.

The unexpected inkblot effects are discussed in relation to three possible explanations -- simple, unfamiliarity, cognitive processing overload, and heightened anxiety. The anxiety hypothesis is argued to be most satisfactory to explain a variety of differential results observed via internal data analyses. Implications for the children's psychodignostic literature are considered.

The facilitative effects of verbal ability and novel play experience are discussed, as are the relationship between story length and structural complexity and the absence of sex differences.

Educational implications of the finding that minimal situational constraints increase fantasy complexity are discussed within the context of related arguments for psychologically-spacious environments maximizing flexibility and creativity. Rather than any simple linear relationship between playtime freedom and adult creativity, however, the argument is made that freeing a child's playful environment facilitates his developing a wider repertoire of activities potentially adaptive in his later life.

DESIGN AND PROCEDURES

The purpose of this study was to determine if certain structural constraints on children's storytelling situations would inhibit the overall developmental/structural complexity of those stories and if certain content constraints would affect the manifest psychosocial content in inhibitory, and possibly also facilitative, ways. This chapter provides detailed explanations of the methodology employed in the investigation of the hypotheses set forth in the preceding chapter.

Subjects

The total sample population consisted of 96 third and fourth grade children from a single elementary school in Nassau County, New York. Subjects were divided equally between the sexes, and approximately equally between the two grades. In the 8-9 age range, these subjects are not only squarely in the middle of the traditional latency age span (Eriksonian Level IV - Industry vs. Inferiority), but should also, according to Sutton-Smith et al. (1975) and Mahoney be moving into a more advanced stage (3B) on the Piagetian-based story structure scale, into the stage of Coordination and Reversibility of Actions (Plots) as detailed below.

Subjects were recruited by sending parents of all 270 third and fourth graders a letter of introduction, over the principal's signature, with a tear-off consent slip to be returned to teachers. Just over half of the parents responded affirmatively, including those requesting further information by telephone. (Teachers reported, without exception, that non-respondents and refusals were largely predictable to them -- because of the children's constricted or negative classroom behavior, because of the parents' rigid or conservative demeanor or because of language problems.) From this subject pool, a master list of subjects, classrooms, and class schedules was constructed so subjects could be drawn with as little inconvenience as possible to special classes (e.g., reading, music). Within these minimal constraints, the researcher had relatively complete freedom to randomize his selection of classrooms and pupils.

Teachers had been asked, in advance, to withdraw from the master list and names of pupils with "severe or unusual" language problems and pupils who had "severe" behavior disorders. While this rejection procedure affected only six of the original consentful respondents, it was one additional measure to ensure a homogeneous population.

Additional subjects, beyond the necessary 96, were run to ensure no missing data if there were occasional technical or methodological problems encountered in the transcription and assembling of the data after its collection. In fact, ten original protocols were withdrawn, and appropriate substitutions made, because of tape inaudibility (2 protocols), methodological problems (3 protocols), known psychiatric involvement (1 protocol), peculiar, deviant behavior in the interview session (1 protocol), and large age deviations (i.e., left back one or two years) (3 protocols). These latter disqualifications were considered necessary to maintain as much homogeneity as possible within the population.

Background Data

In addition to educational, behavioral, and age homogeneity (age range = 8;0 to 10;0, mean = 8:11), this sample is drawn from a one-square-mile village which offers a relatively homogeneous population socio-economically and socio-culturally. The community is largely white-ethnic, Roman Catholic, blue collar. Average assessed home value is approximately $6,400 (below the mean Nassau County $6,800 assessment), a relative figure which is quite modest in comparison to other Nassau County property in the same proximity to New York City (King, Note 3). In addition, properties in the community have a substantial uniformity of appearance and valuation.

Homogeneity of SES was further demonstrated by scaling head-of-household occupations on the amended Hollingshead Seven-Point Occupational Scale (Stricker, 1972). Occupational information was gathered by asking each child what his father (or mother, if father was deceased or missing) does "for a job." When a child was not sure, he was asked questions designed to elicit an occupational profile which would be as accurate as possible. Although the children's knowledge in this matter sometimes results in some vagueness to the final responses, the Hollingshead scores were matched as closely as possible to the available information and could virtually always be scaled with a fair degree of certainty. (Scoring was done by an outside professional, not a psychologist, who was unfamiliar with the subjects or the village in question.) The resultant distribution of scores revealed a heavy concentration of occupations in the lower-middle range of the Hollingshead scale: 30% scoring 3 on the 7-point scale (e.g., Postman, Fireman) and 21% more scoring 4 (e.g., Clerks, Telephone Company Supervisor). In addition, fully 80% of this population scored between 2 and 5, confirming the populational skew toward middle and lower-middle class occupations.

Another background variable for which a control measure was necessary was verbal ability and/or IQ, since the experimental task is very much a verbal task. Because the WISC-R vocabulary subtest (Wechsler, 1974b) is an excellent indicator of verbal ability (.78 average correlation with WISC-R Verbal IQ) and of composite intellectual functioning (.74 average correlation with WISC-R Full Scale IQ) it was chosen as the most suitable control measure. The full WISC-R vocabulary test was administered to each subject at the end of the interview procedure. Scoring was done during administration with the detailed WISC-R Manual as a guide (Wechsler, 1974a). Because the experimenter is an experienced clinician and tester, reliability can be assumed within the demonstrated range of reliabilities reported in the WISC-R Manual.

Another background variable emerged from a set of questions actually designed for a warm-up portion of the interview. Because inventiveness and originality were integral to the experimental task, it was decided to set the stage for novel, playful behavior by first asking three standardized questions concerning the subject's flexibility, inventiveness, and originality in play: What game rules had he changed?, what game had he invented?, and could he invent a new game on the spot? Elaborated answers to this Novel Play Behavior Interview could then be scored on a simple two-point scale for degree of inventiveness and freedom from the everyday constraints of stereotyped game playing. Although scoring criteria are explicated in detail in Appendix D, the basic method was to allow one point for nearly any answer which made sense and had an original component to it; and to score two points for well-elaborated responses showing substantial play organization and/or considerable originality.

Scoring was done by the researcher only after he had shuffled interview protocols thoroughly and divorced this scoring process from any obvious cross-references to any of the other scoring processes. Since the Novel Play Behavior Interview was recorded on a sheet of paper quite separate from the verbal measure, the stories, or the story scores, the scoring method was determined to be adequately uncontaminated. Reliability for the scoring method was established at .90 with 30 scorings by another person unfamiliar with the subjects, the protocols, or the intent of the measurement. In discussion of the three one-point disagreements between raters, total consensus was established, with all three decisions in favor of the primary scorer's original evaluations.

It should be noted that this measure differs substantially from Singer's Fantasy Predisposition Index (1973), although the two measures would probably correlate highly. Because this study investigates structural elements of fantasy and not the degree of fantasy itself, questions allowing for structural (rule) manipulations and play organization as well as fantasy elaboration were preferred to Singer's emphasis on degree of fantasy.

Because prior investigation indicated that degree of storytelling fantasy could be affected by the sex of the experimenter (Petersen, Note 2), a control was included in this study to determine if the sole male storytaker had any differential effect with pupils who had or had not had experience with male teachers. Each subject's protocol was scored for sex of current homeroom teacher and for the subject's own report of experience with other male teachers, either present or prior. Any reported experience with a male teacher, irrespective of the length or timing, was considered sufficient for scoring the subject has having had male teacher experience. In all, 57% of subjects had had male teacher experience, and 43% had not.

Materials

Four variations of both inkblots and pictures were used. Holtzman inkblots #[illegible], [illegible], [illegible], and [illegible] (1958) were chosen for several reasons: Holtzman blots have been shown to elicit movement responses from children rather easily (Holtzman, Thorpe, Swartz, and Herron, 1961) whereas Rorschach blots do so much less readily at this age (Halpern, 1953); normative data indicate that these four blots elicit movement responses from 3/4 or more of all subjects (range [illegible]) on a scale which further indicates that all but 1-2% of this movement is of a non-violent, nonwhirling type ranging from static potential for movement to dynamic movement such as dancing or running: and approximately 3/4 of more of all subjects also respond with humans rather than part-humans or cartoon characters. Although it was realized that these considerations would add some degree of constraint to this 'moderately structured' experimental stimulus, it was felt that cards which did not lend themselves readily to human and/or movement percepts would confuse or inhibit these young subjects in their task of telling a story based on the inkblots.

Pictures were taken from the Tasks of Emotional Development series (Cohen and Weil, 1971) -- pictures LB11, LB3, LB1, and LB12 for boys and LG11, LG3, LG1, and LG12 for girls. These are four situationally-similar pairs of pictures depicting either boys or girls of latency age in similar situations. These cards have been developed and normed to pull for stories about developmental concerns characteristic of varying psychosocial levels in the Eriksonian timetable. Cards LB11 and LG11 pull for stories of neatness and parental authority (Level II); cards LB3 and LG3 elicit stories of aggression and bodily harm (Level III); cards LB1 and LG1 pull for peer-relationship tales of team cooperation (Level IV); and cards LB12 and LG12 pull for stories of body imagery and self-perceptions (Level V). Since empirical evidence would predict as much or more Level III concern as Level IV in this 8-9 year old middle SES group (L. Mack, 1974), it was felt that only cards from Levels II and V would be clearly one level removed -- up or down -- from what is expected as age-appropriate story content.

Interview Procedures

Subjects were taken from their classrooms individually, only after the researcher had been introduced during a short classroom presentation describing the intent of his activities. After a first subject was run from each classroom, there was marked enthusiasm for being chosen whenever the researcher entered the room.

Subjects were run individually in a private book storage room in which a table and chairs had been set up. Each interview took approximately 20 minutes, although they varied from 15-45 minutes in length. Data collection took most of 13 consecutive school days in early December, 1975.

Subjects were asked, on the way to the storage room, what they had heard about what was to happen. Most said simply, but rather excitedly, "Tell stories" or "Tell three stories," although some claimed not to have heard anything. Only one subject reported any knowledge of any variety of stimuli for the stories, and only four reported hearing they'd have to define words as well as tell stories.

Once seated in the storage room, the researcher asked first for demographic and background information as listed at the top of the Interview Form, Appendix C. Protocols had been randomly pre-coded both with a specific order of story presentation (some variation of Freeform/Verbal-stimulus-only + Inkblot + Picture) and with numbers of the specific blot and picture to be used. Random pre-coding had been done within the constraints that order of presentation be equally counterbalanced within the sexes and specific blots and pictures be presented in varying combinations approximately equally within each of the six presentation orders within each sex.

Subjects were then read the introductory stage-setting paragraph of the protocol and asked the three Novel Play Behavior interview questions. Subjects who showed signs of difficulty with the Novel Play Behavior questions were plotely encouraged to respond in some scorable way, although none was pushed beyond a second "No" or "I don't know." Since the primary purpose of these questions was to set the stage for novel ideas and behavior, moderate deviation from an absolutely standardized administration of this interview was deemed appropriate.

Following the Novel Play Behavior Interview, the child was introduced to both the storytelling phase of the protocol and the tape recorder by the experimenter's reading a standardized paragraph. No subject objected to the taping, in part because the researcher made a special effort to introduce its presence in a light, playful way. That playful, 'pretend' mood was continued throughout the three introductions to the "listening audience."

Each subject was them asked to tell stories in response to the three stimuli in accordance with a protocol pre-coded for presentation order and card numbers. Storytelling began as soon after the experimenter's introduction as the child had his thoughts together -- usually a matter of a few seconds. Storytelling ended whenever a child exhibited some variety of 'finishing' behavior: e.g., verbalizing a story marker such as "The end"; handing back the stimulus card; or a 15-20 second period of silence at a point in a story which sounded like it might have been the end (at which point the child had to make explicit his story's ending by responding to the experimenter's question, "Is that your story?"). The experimenter was careful to put no explicit or implicit time pressures on a child's story, nor was a child overtly encouraged to continue beyond his own natural story length in each experimental condition. After each story the subject was given the simple verbal reinforcement "That's good," and asked which character in the story was most like the storyteller -- information to be used only if there was any doubt which was the main character for the content (Eriksonian) scoring system to be explicated below.

When the third story had been completed, the interviewer said simply "Now, I'd like to ask you what some words mean," and began the WISC-R vocabulary items on a separate sheet. Answers were recorded verbatim and scored as indicated previously. Once five consecutive zero-point responses were scored, the subject was thanked and told to return to class.

Instruments

Two basic scoring instruments were used to obtain the two dependent measures for each story. Both the structural (Piagetian) and content (Eriksonian) scoring systems, to be described fully herein, yield one numerical score for the highest stage/level evidenced, and thus lend themselves readily to statistical analysis.

Scoring system for structural (Piagetian) complexity

Each story in the sample was scored for structural complexity according to a developmental scoring system proposed by Mahony (Note 4) and reported by Sutton-Smith, Botvin and Mahony (1975). The theoretical underpinnings for this system are Piagetian spatio-temporal notions of object constancy, coordination, and reversibility, all of which play crucial roles in the ability to produce cohesive narratives (as well as in other expressive forms), and all of which develop systematically throughtout childhood. Mahony avers that these structural concepts are applicable across several expressive forms regardless of content, and the scoring system has the added advantage of easily-attained inter-rater reliability.

Each of the three major stages through concrete operational latency age (up to the advent of formal operations) is divided into two sub-stages having both logical and empirical developmental chronology to them.

Stage I: Free association (up to 2 years)

1a. Simple strings of characters or actions, without manifest attempt to coordinate either characters or actions to each other.
1b. Simple strings of characters and actions, again without manifest attempt to coordinate characters and actions to each other.

Stage II: Conservation and Coordination of characters (ages 2-5)

2a. A central character endures, or is conserved, with reversibility of actions manifested only in contiguous action reversals (e.g., "the monkey went up... the monkey fell down ..."). Other characters either do not endure or they have no reality (coordination) apart from their relationships to the central character. Sutton-Smith, et al. (1975) quote an example of such a story:

> The airplane flew up in the sky. And after he flew up, he flew down in the park. This goes up in the airport. It had a little accident and it had to fix it. The airplane fell down. (2 year old) (p.15)

2b. Other characters endure throughout the story in a coordinated fashion, such that they have their own interactions:

> The tiger catched the cat. Then the cat ran away. He don't like tiger. Then the tiger just ran away to the cows. Then the cows ran and ate the cat up. (4 year old) (Mahony, Note 4, p. 5)

Multiple main characters, however, have not yet been coordinated and are treated as a single entity. Story action at this stage shows unidirectionality of time.

Stage III: Coordination and reversibility of actions (plot) (5-11 years)

3a. At about 5 years of age, actions are coordinated into single reversible strings in which actions at the end of the string reflect a reversal of the actions at the beginning of the string in some way. The result is a story model having a beginning, middle, and end:

> I'll tell you a story. He's going to be a pumpkin man. Once upon a time, there was a pumpkin man. And he lived in a little pumpkin house close by the city. And he wanted to go to the city, so he went to the pumpkin-mobile and he went faster than the speed bullet, more powerful than a locomotor. He could go down the highest hill in a single bound. And he went so fast that he past-ted the store that he wanted to go to. Then when he got back home, he went to bed. (5 year old) (Mahony, Note 4, p. 6)

3b. At about 8 years, double reversible strings appear with two simultaneous reversals occurring along different planes of experience (e.g., spatial and psychological). The double reversible strings occur either parallel to one another in a "meanwhile back at the ranch" variety, or one may be embedded in the other. Examples of both kinds of double reversible strings are cited by Mahony (Note 4):

> Once there was a girl named Rita. She lived on an old block in the hundreds up on the east side. Her mother was a cleaning lady and that was the way she supported her family. She always made Rita work, help with the work. One day her friend Rosa came up and asked her if she'd like to go for a walk down the block. So, she told her mother that she'd do her work later. So, they both went down the stairs and out on the block. They were walking down the block that nobody every went on when Rita felt a knife at her back. She turned around and she saw that it was only her little brother with his fake knife. So then he said, "Mom said she wants you home so she can go out for a while and you can walk with Rosa later." So they all walked back to Rita's house and Rita said goodbye to Rosa and walked upstairs with her brother. That's the end. (9 year old) (p. 7)

> Once upon a ghostly afternoon Mary and little Eva Hotchkins were sitting in the living room of the Hotchkin's manor. They got a disturbing phone call saying the Mr. H., an airforce pilot was killed in flight. The telephone call said to come to the war office. They both ran downstairs and outside to the chauffeur. Mrs. H. put her head on his shoulder and started to weep. He tried to comfort her and he asked her what was the matter. She said in a cry, "He is dead." The chauffeur named Roy asked, "Who is dead?" "Mr. H.," she cried. They jumped into their Rolls Royce and zoomed to the war office.
>
> Meanwhile in the war office some crooks were taking it over. They tied up all the executives and staffs of the war office and hid them in the basement. They changed their clothes with the executives and went to work. (story continues) (11 year old) (p. 7)

Chapters begin to appear in this stage as an organizing system for larger strings of reversible sequences.

Later stages, not yet codified, involve the additional possibilities and flexibilities of a kind of 'formal creativity,' including manipulation of form, awareness of the literary audience, reciprocity in interactions, and a new emphasis on affect.

Mahony (Note 4) developed his scoring system in his work with over a thousand stories from children 2-12 years old. He reports confirmation of his developmental timetable in a systematic study of stories from 100 subjects spread evenly across the 2-12 age span.

Stories in the present study were scored by the investigator only after they had been stripped of meaningful identification and shuffled into random order. As a check on the researcher's scoring reliability, Mahony scored a random sample of 14 stories with a resultant reliability of .86. After discussion of rater differences, consensual reliability was 1.00, with both of the two single-point score changes in the direction of the reseracher's original scores. For scoring purposes, each sub-stage was assigned a number from 1a=1 to 3b=6. Each story, therefore, received a score between 1 and 6 on this structural (Piagetian) scale.

Scoring system for manifest psychosocial content (Eriksonian)

Elkan (1969) originally developed her 144 question checklist (Appendix E) to determine manifest psychosocial developmental levels in dreams, but her scoring system has since been extended to stories in comparative dream and story pilot work by this author and by Caring (Note 5). With both kinds of data, the Elkan checklist effectively discriminates various ages of children according to the developmental psychosocial sequence of crises and concerns predicted by Erikson (1950, 1953, 1959, 1964).

Briefly, Elkan constructed her checklist by scouring Erikson's writings for descriptions and definitions of the eight psychosocial levels, integrating her findings into cohesive descriptions which then served as the basis for yes-no question items formulated to cover all aspects of each stage. An independent judge, familiar with Erikson's theory, verified that Elkan's questions accurately reflected the issues described by Elkan. The final product was 144 randomly ordered yes-no questions scored for whether or not each question's particular concern was manifestly evidenced in a dream/story.

Since each question is associated with one particular crisis level and any one dream/story may be scored 'yes' on many checklist items, each dream/story may be scored for many crisis levels. For purposes of statistical analysis, only the highest crisis level scoring is considered as a final score for any one dream/story. The rationale for such a procedure has been thoroughly explicated by both Elkan (1969) and L. Mack (1974) and follows from the epigenetic nature of Erikson's theory. Theoretically, although an individual may be well into one particular psychosocial stage of development, concerns prior to that stage may be frequently evidenced, since earlier concerns are seldom totally resolved and often need ongoing integration into higher developmental states; and concerns beyond the current stage may be evidenced in some precursive way, but Erikson postulates that these 'future' concerns do not become focal until they become phase-specific within the appropriate chronological period of ascendancy. Future concerns will therefore appear far less frequently than current phase-specific concerns. These notions have all been substantiated in the studies of Elkan (1969), L. Mack (1974), and R. Mack (1974), so the practice of considering as a final score only the highest developmental stage has now gained considerable empirical validity.

Reliability has also been well established in the three studies cited above. Inter-judge reliability has consistently been reported at or near the .90 level with experienced scorers, and repeated matching tests of multiple pairs of scorings have consistently allowed 100% accuracy with totally independent judges. The rater for this study was a thoroughly experienced Elkan scorer, a psychology graduate with no knowledge of the subjects or the experimental hypotheses of this study. As an additional precaution against bias, story protocols were thoroughly shuffled before being given to the scorer so that each chil's three stories (identified only by subject numbers, in any case) were randomly scattered throughout the series. Fifty random stories were scored by both scorer and experimenter to ensure overall consensus. Subsequent spot checking of the scorer's work by this investigator indicated the same high levels of agreement reported in prior studies, and no additional formal reliability test was considered necessary.

It should be noted that the only change a story scorer need make in Elkan's system is to change references to "the dreamer" (e.g., Item 3: Does the dreamer associate with his peers?) to be "the main character" as defined by a story's self-reference or by the centrality of a main character to the story's actions and interactions. In the event there were multiple main characters of equal status (e.g., a dancing pair.), the main character for scoring purposes was considered as any one of the multiple characters. If it was unclear who in the story served as the main character, and if the subject had not indicated in the interview (as described previously) which character was to be considered most like himself, then all questions referring to "the dreamer" were deleted from scoring. This latter situation occurred very infrequently in the 288 stories collected for this study.

The entire collection of stories is reproduced herein as Appendix F.

RESULTS

A two-factor repeated measures design was constructed with two levels of sex and three levles of structural constraint serving as the two main factors. Nested within the two upper levels of structural constraint were four levels of additional factors -- the variation in inkblots and pictures. There were 48 subjects per cell in the basic 2 x 3 design, with 12 subjects in each of the nested sub-cells. Two separate analyses were conducted for the two separate sets of Piagetian and Eriksonian scores. All variations of structural constraints were counterbalanced to control for order of presentation: variations of picture content constraints were randomized within this counterbalance, as were variation of inkblots.

Because it was suspected that the usual parametric assumptions of normal distribution and common variance might be untenable for these data, a master table of means, variances, and distribution profiles was prepared. Examination of that data did evoke enough questions -- particularly regarding normality of distributions -- that the conservative non-parametric approach was chosen for data analysis. It was also decided that the data could be considered of an interval nature without making too-burdensome assumptions. In addition, visual inspection of scattergrams confirmed the basic linearity of all relationships of interest to this study so that correlational statistics might be computed and reported.

The basic statistical tools used herein were the Kruskall Wallis one-way analysis of variance (by ranks) and the approximated version of the t-test (Siegel, 1956) for which parameters are estimated. Both types of analyses are amongst the most powerful of the non-parametric procedures. The approximated t-test has the further advantage that it is sufficiently conservative to be used with mutually dependent measures. Multiple t-tests employed a .01 level of signifcance to minimize accumulating type-I error levels. T-tests were two-tailed unless a specific hypothesis warranted a one-tailed test.

Correlational statistics, while certainly valid for non-parametric data as long as the relationship is observed to be linear, may not have significance values attached to them because the significance tests themselves are inappropriate parametric procedures. Additional information on strength of relationships is provided by Cramer's V-statistic, which, like traditional correlation values, ranges from 0.0 to 1.0. The V-statistic is particularly suitable for tabulated frequency data. Again, however, there is no appropriate significance test and the best indication of statistical importance is the indicated proportion of variance accounted for by the observed relationship. When necessary, partial correlations were computed in order to analyze confounding relationships amongst certain variables.

No interactions, beyond those reported herein, were discovered in a careful search for variance irregularities within master data tables constructed for each interesting combination of variables. Despite the difficulty of finding and analyzing interactions in non-parametric analyses, it can be stated with considerable confidence that there are no possible further interesting -- or expectable -- interactions within the data of this study.

The Effects of the Structural Variations

Mean structural (Piagetian) scores, as presented in Table 1 below, support the hypothesis that the storytelling condition most free of constraints (Freeform) would yield the most developmentally complex stories, but the Blot and Picture conditions show a reversal of the hypothesized effect. Instead of the hypothesized Freeform Blot Picture, the findings indicate Freeform Picture Blot (all t-tests yield p .01).

Table 1

Mean Structural (Piagetian) Scores in Three Storytelling Conditions

		Storytelling Condition			
Group	N	Freeform	Blot	Picture	Combined Mean
Boys	48	4.96	3.75	4.15	4.28
Girls	48	4.85	3.96	4.38	4.40
Total	96	4.91	3.85	4.26	4.34

Note: Scores range from 1 (Stage 1a) to 6 (Stage 3b)

There is no significant sex difference.

It was further hypothesized that structural variation of storytelling conditions would have no effect on content (Eriksonian) scores, but this hypothesis was only partially validated by the findings of the present study. As the data in Table 2 indicate below, the Blot condition produced content scores significantly lower than either the Freeform or Picture conditions (t-test, both p .01), the latter two showing no significant difference.

Table 2

Mean Psychosocial Content (Eriksonian) Scores in Three Storytelling Conditions

		Storytelling Condition			
Group	N	Freeform	Blot	Picture	Combined Mean
Boys	48	3.52	3.13	3.37	3.34
Girls	48	3.70	3.06	3.67	3.48
Total	96	3.61	3.09	3.52	3.41

Note: Score range from 1 (Level 1) to 7 (Level 7): Maximum possible score = 8 (Level 8)

Again, there was no difference in mean scores between the sexes.

The Effects of the Content Variations

It was hypothesized that content variation would affect content (Eriksonian) scores such that pictures pulling for early developmental concerns would produce lower content scores than those pulling for age-appropriate concerns, but that high-level pull would probably not increase content scores significantly. It was also hypothesized that content variation would have no effect on structural (Piagetian) scores. Data for these two hypotheses are presented in Table 3 below.

Table 3

Comparison of Mean Story Scores by Picture Variations

Picture (Content)	N	Structural (Piagetian)	Content (Eriksonian)
(Crisis Level) 2	23	4.35	3.22
(Crisis Level) 3	25	4.40	3.52
(Crisis Level) 4	22	4.55	3.77
(Crisis Level) 5	26	3.81	3.58
Total	96	4.26	3.52

Multiple t-tests confirm that structural scores are not affected significantly, but that content scores are influenced in the hypothesized direction. Picture 2, normed to pull for content appropriate to Eriksonian crisis level 2 (Autonomy vs. Shame and Doubt), in fact produced content scores significantly lower than the theoretically age-appropriate picture 4 (t=2.48, 43df, p .01, one-tailed test). The difference between pictures 2 and 3, while failing to reach significance (t=1.64, 45df, p.10 p .05, one-tailed test), is in the predicted direction and is totally consistent with Erikson's epigenetic theory. Picture 5, like 3, is not different from picture 4 in the content scores it produces, despite its normative higher-level pull. Since all three latter pictures produce mean scores between levels 3 and 4, the inference is that all three are interpreted by these subjects within a group developmental level which has not yet reached Erikson's crisis level 4 (Industry vs. Inferiority) despite their being in the middle of the theoretical level 4 age range.

The Relationship of Structural and Content Scores

Not surprisingly, the structural (Piagetian) and content (Eriksonian) measure contain a small, but significant, amount of shared variance. Mean scores over the three structural conditions (and over the four content conditions) share a variance of approximately 16%, with both r and Cramer's v = .4; Freeform stories alone show approximately 5-6% shared variance between mean structural and content scores (r=.23; v=.24); Blot stories alone share an approximate 7% variance portion (r=.27, v=.27); and Picture stories (again, across conditions) share approximately 14-19% common variance between the two measures (r=.44, v=.38).

The Effects of Blot Variation, Order of Presentation, and Story Length

As hypothesized, blot variations made no difference either in structural or content scores (multiple t-tests), as shown in Table 4 below.

Table 4

Comparison of Mean Story Scores by Blot Variations

Blot#	N	Structural (Piagetian)	Content (Eriksonian)
12A	23	3.70	3.04
19A	27	3.63	2.89
34A	26	4.19	2.96
25B	20	3.90	3.60
Total	95	3.85	3.09

Likewise, order of presentation made no difference to either structural or content measure, as shown in Table 5 below.

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Table 5

Comparison of Mean Story Scores by Order of Presentation

Order	Structural (Piagetian)	Content (Eriksonian)
First stories	4.35	3.40
Second stories	4.25	3.35
Third stories	4.42	3.48
Total	4.34	3.41

Length of story, however, is correlated at approximately .3 (r's=.27-.33) with structural scores in all three conditions. (Stories were blocked

Table 5

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Order	Structural (Piagetian)	Content (Eriksonian)
First stories	4.35	3.40
Second Stories	4.25	3.35
Third Stories	4.42	3.48
Total	4.34	3.41

Length of story, however, is correlated at approximately .3 (r's=.27-.33) with structural scores in all three conditions. (Stories were blocked into three approximately equal groupings: 75 words, 75-125 words, and 125 words.) The relationship between length and structural complexity accounts for approximately 9% of the variance in the structural measure, therefore, across the three structural conditions. Despite the significance correlations, however, when one examines the frequencies of higher-structure stories amonst the shortest productions in the Freeform condition (which is unconfounded by the other stimulus variables), the relationship of length and structure loses its significance (-2.81, 1df, n.s.) as is shown in Table 6.

Table 6

Frequencies of Story Length and Structural (Piagetian) Scores

	Structural (Piagetian) Score	
Story length	4	5 or 6
Shortest	9	14
Moderate & Longest	14	59

Length was not correlated significantly with the content measure except in the Picture condition (r=.39), but inspection of the data reveals this effect to be primarily a function of the significant differential effect of picture 2. As Table 7 shows below, picture 2 produced not only lowered content scores (Table 3, above), but significantly more of the short stories (=5.51, 1df, p .02).

Table 7

The Differential Effect of Picture 2 on Story Length

		Story Length (Frequencies)	
		Shortest & Medium Length	Longest
Pictures	#2	22	1
	#3-5	50	23

The Effects of the Background Variables

Verbal ability, as operationalized by scaled scores from the WISC-R Vocabulary subtest, proved to be similarly and significantly related both to structural and content scores, although with a slight difference in the consistency of that relationship. Table 8, below, presents the structural data, revealing a significant effect of higher verbal abilities (Kruskall-Wallis corrected $H = 7.31$, 2df, p .05), although inspection of the data shows that effect to be true only from the Average to either the Above-Average or Superior group, with the latter groups effecting no difference (multiple t-tests, significant p's .01).

Table 8

Effect of Verbal Ability on Mean Structural (Piagetian) Scores

		Storytelling Condition			
Verbal Ability Group	N	Freeform	Plot	Picture	Mean
Average	36	4.56	3.75	4.00	4.10
Above Average	33	5.12	4.03	4.39	4.52
Superior	27	5.11	3.78	4.44	4.44
Total	96	4.90	3.85	4.26	4.34

Note: Verbal ability groups determined by WISC-R vocabulary sub-test scores:

Group	Scaled Score Range
Average	8 - 11
Above Average	12 - 13
Superior	14 - 18

Further internal analysis of the data shows this relationship is true in both Freeform and Picture conditions, but there is no difference between means in the Plot condition (multiple t-tests, significant p's .01).

Table 9, below, displays the content area.

Table 9

Effect of Verbal Ability on Mean Content (Eriksonian) Scores

Verbal Ability Group	N	Storytelling Condition Freeform	Blot	Picture	Mean
Average	36	3.42	2.81	3.42	3.21
Above Average	33	3.61	3.15	3.61	3.45
Superior	27	3.89	3.41	3.56	3.62
Total	96	3.61	3.09	3.52	3.41

Note: Verbal Ability Group determined as explained in Table 8.

A Kruskall-Wallis one-way analysis of variance by ranks shows a significant effect of verbal ability (corrected H=6.07, 2df, p .05), with a gradual increment in mean scores from Average verbal ability to Superior. The effect on content scores appears more linear than the effect on structural scores, although only the Average and Superior mean scores show significant differences individually (multiple t-tests, p .01). Internal inspection of the data reveals similar trends in both Freeform and Blot conditions (although none of the differences are significant). The Picture condition shows little difference among any of the three levels of verbal ability, which result is expectable because of the confounding significant effects of the varied picture pull (Table 3).

Table 10, below, presents the structural data as it is broken down by Novel Play Behavior/Experience groupings:

Table 10

Effect of Novel Play Behavior/Experience on Structural (Piagetian) Scores

Novel Play Behavior/ Experience Grouping	N	Storytelling Condition Freeform	Blot	Picture	Mean
Low	29	4.83	3.83	4.21	4.28
Moderate	34	4.79	3.62	4.09	4.17
High	33	5.09	4.12	4.48	4.57
Total	96	4.91	3.85	4.26	4.34

Note: Novel Play Behavior/Experience grouping determined by blocking on Novel Play Behavior Interview scores as follows:

Grouping	Score Range
Low	0 - 2
Moderate	3
High	4 - 6

The structural data in Table 10 reveal a significant effect of Novel Play Behavior/Experience, with high interview scores predicting higher structural scores (Kruskall-Wallis corrected H=7.14, 2df, p .05). Each of the three storytelling conditions shows similar trends. The same Kruskall-Wallis test on the content scores, however, showed no difference of population amongst the three levels of Novel Play Behavior/Experience scores (corrected H=5.85, 2df, n.s.).

It might be noted that scores from only one of the individual questions on the Novel Play Behavior interview correlated even moderately with moderately with structural scores: the Rule Change question correlated r=.26 and v=.37 with mean Piagetian scores. Such a relationship is quite reasonable since Piaget's concept of reversibility is integral to both sets of scores.

Prior or present experience with male teachers (the experimenter's attempt to control for possible experimenter sex effects) at first showed a relatively small but consistent correlation with the structural scores, with the child's inexperience accounting for 2-4% of the variance of lowered scores. That correlation faded to a point of negligibility, however, when the effects of length were parcelled out of the correlation. See Table 11 below.

Table 11

Intercorrelation Matrices of Structural (Piagetian) Scores, Story Length, and Experience with Male Teachers

Freeform Stories

	Structural Score	Story Length	Experience with Male Teachers	Controlling for Length
Structural Score	1.00	.33	- .19	- .11
Story Length		1.00	- .27	
Experience with Male Teachers			1.00	

Blot Stories

	Structural Score	Story Length	Experience with Male Teachers	Controlling for Length
Structural Score	1.00	.28	- .15	- .11
Story Length		1.00	- .18	
Experience with Male Teachers			1.00	

Picture Stories

	Structural Score	Story Length	Experience with Male Teachers	Controlling for Length
Structural Score	1.00	.27	- .15	- .14
Story Length		1.00	- .07	
Experience with Male Teachers			1.00	

With effect of length controlled, experience with male teachers represents only 1-2% of the variance. The consistency of the correlations suggest the existence of some small but negligible relationship between a story's structural complexity, its length, and the storyteller's experience with male teachers when the storytaker is a male. The relative paucity of the relationship, however, allows one to abandon any further consideration of its impact.

Paper #4 Sex Effects on Maranda Levels

by Thomas Stevens

and Marylou Caring

In an attempt to analyze the effect of the sex of the storytaker on the stories of the children, we have isolated the stories of 16 children, ages 8, 9, and 10, who gave stories to both male and female storytakers. Both storytakers were in the class for the same period of time (10/73 - 6/74) although the amount of time spent with any particular child was not necessarily the same for both storytakers. In most cases one storytaker took most of the stories from any one child and the other storytaker took only one or two stories towards the end of the school year (usually in March or April). Only stories that were dictated directly to the storytaker were included in the analysis: manuscripts, poems, dreams, and descriptions were omitted. The stories were scored with the Maranda* scale and the scoring was checked by both scorers.

	Male Storytaker	Female Storytaker
Stories at Level I and II	24	19
Stories at Level III and IV	29	15

Total number of stories analyzed = 87

This yields a X^2 of .93 while the critical value of X^2 at the p .05 is 3.84.

At this point we do not see an effect on the stories due to the sex of the storytaker.

*Maranda levels are explained in paper #7 below.

IV. RESULTS

(A) GAMES

Paper # 5. Games of Order and Disorder

by Brian Sutton-Smith

Introduction

I happened onto the basic game class of order and disorder in attempting to account for an anomaly in game collections. There has always been a class of games variously defined as amusements, pastimes, entertainments or diversions which have not fitted the usual definitions. For example, Ring a Roses in which the players dance around singing and fall down at the end. Investigators with an eye to adult games rather than those of children have defined games as voluntary rule governed behaviors involving sides, outcomes and winners. (Roberts and Bush, 1954). Pastimes do not have winners and they may not have sides. Yet like games, they are voluntary activities with their own particular rules, and they do have uncertainty with respect to outcomes. Instead of the players contesting with each other, however, they combine together to act out a contest between the forces of order and disorder. I like to think that these games illustrate the basic issue in all co-operation, which is whether the playing group can maintain its existence against the normally divisive forces which play upon it. While it has often been pointed out that competition implies cooperation because the players must be able to agree about the rules, it has not been generally realized that there are games whose major forms had been the question of that co-operation; games whose focus is the antithesis between order and disorder. Because these games are the most elementary to be found in childhood, it seems probable that the playful opposition between forces and the disequilibrating outcome which they contain, provide us with the generic definition of a game. At least such a definition enables us to combine in one category such discrepant phenomena as the games of mother and infant, the games people play (after Berne) and the games of the Blues and the Reds.

Method

It was originally intended to study games of order and disorder in cross-cultural perspective and to this end, a sample of 60 cultures was drawn from the Human Relations Area Files (Category 524), so chosen as to represent the major culture areas of Europe, Africa, Asia, Pacific, North and South America (Naroll, 1967). Unfortunately the search was unproductive, yielding only about a dozen examples, most of which resulted from some of the excellent game descriptions in North American sources. And yet, where more comprehensive game collections (outside the Human Relations Area Files) have been made, examples of these games are often to be found (Salter, 1967: Lansler, 1968). Naturally such games are not as abundant in such collections as the records of competitive games. They are generally felt to exemplify more childish tendencies, and are thus even harder to justify as matters for serious study. Given the paucity of evidence, therefore, I am forced to set up a hypothetical account of the way in which such games might exist. The procedure is to outline the age-developmental stages of complexity in these games as they appear amongst children in western societies, and then see if similar examples can be found in the cross-cultural materials. But first, it is necessary to deal with play across the general dimension of order and disorder, leaving the specific games of order and disorder for treatment secondarily.

The Dimension of Order and Disorder

On a dimension of play behavior which ranges from a concern with order at one end to disorder at the other end, the games that I wish to discuss occupy a middle ground containing elements of both. But at each end of the dimension, there are yet other plays and games in which the action is more completely polarized. They are either completely orderly or completely disorderly. The position can be expressed diagrammatically as follows:

Order	Order/Disorder	Disorder
Imitative Plays	Level 1: Diffuse	Mimicry
Choral and Ritual Plays	Level 2: Central Person	Vertigo
	Level 3: Collaborative	
Contests of Skill:	Level 4: Scapegoat	Steadfastness

As an illustration of 'order' we may take the many plays of children throughout the world in which the action of adults is mimetically reproduced as closely as possible. These imitation games are undoubtedly the most universal of all, and they illustrate the desire for mastery of which many play theorists have spoken. There is evidence that these games are most clearly reproductive of adult activity and authority, when adult authority is itself very coercive (Smilansky, 1968). We may conjecture that somewhat similar motivation enters into the extensive imitation activity of adults in those tribal communities where it occurs. The Jivaro Indians, for example, are reported (HRAF #524) to believe that by dramatizing the actions they fear, they are able to take control over their occurence. Identification with the aggressor, or representation of the feared or conflict-inducing event, may result in a sense of playful mastery in tribal culture as some have written (Huizinga, 1944, p.14).

In the following game of imitating sea lions from the Yangans of Tierra del Fuego (HRAF), the anthropologist recording these responses comments throughout on the great skill and sophistication of the performers. It seems probable that although this game is formally similar to the imitation activities of children, it is carried out with a level of skill to be found today only amongst experts in mime. In the game of the sea lion, both men and women clumsily and ponderously lie down close to one another in an irregular group. Some of them stretch slowly, others look around in a bored way, some prop themselves up with their hands flat, while others, half upright drag themselves along the ground. One person will scratch his back as though his hand were a flipper; another wallows exuberantly in the sand. One person will snore loudly until his neighbor lies down on top of him, whereupon he shoots up angrily and bares his teeth at the one who disturbed him. Two other persons fondle each other, imitating male and female. This one or that one will repeatedly snap shut his wide open mouth as though he had caught a fish in the water, make loud chewing motions, and smack his lips with delight. In the midst of all this a few persons will roar in a deep threatening voice. While this confused tangle moves and stirs about, the spectators nearby repeat the melody and often clap their hands. The players themselves intermittently call out ho ho. After a time a woman gets up and gently taps one player after another with a piece of leather. Immediately each one collapses and is dead. Lying in a jumbled confusion, they remain motionless until the same woman puts a mussel shell filled with water to the mouth of each one: he takes a small swallow and is alive again. When all the players have resumed their places, the whole company concludes this extraordinarily charming game with loud high-pitched cries of 'ho ho.'

In imitative games of such considerable orderliness, the game is itself a response to considerable disorder (chance, hazard, uncontrollability, difficulty, conflict) in the nature of things, whether in the action of pwerful others, or powerful or scarce animal food supplies. Australian aborigines, for example, spend considerable effort in imitation of the animals they hunt, and in imitation of the hunting skills required to do so. They encourage and reward the same imitation in children (Salter, 1967).

At the opposite end of this particular dimension of order-disorder are many plays of imitative mimicry. An Australian corroboree, with all its celebration of customary life, contains also its humor, clowns and parodies of scenes from the same life. There are, in addition, children's play corroborees and fun dances which are said to be "all fun and make-believe." Another dimension of order-disorder includes as one pole that many ritual games where there is the impressive orderliness of choral and rhythmic verse and action. These games, sometimes known as ring games or singing games or ritual dramas, are usually an orderly symbolic statement of cultural life or childish aspiration (for example, Punchinello, Farmer in the Dell, London Bridge, etc.). In European culture, the majority of such games center on the conflict of females over acceptance and rejection. They embody a reversal in social forms only insofar as the players who are powerless children are here pretending to be adults and powerful. In life, they have no say yet in love and marriage, although in the game they do. The considerable difficulty that children have in maintaining these games, in keeping time as they march and as they sing, is evidence that part of the function of these orders, is to overcome the inchoateness of their abilities, quite apart from any mastery over the cultural reality. It is an accomplishment for five-to-seven-year olds to get through these games without a disruption occurring from the incompetence of the members. At this age level, then, a game of order is mastery over social psychological anarchy, not only mastery over these more difficult and remote matters of love and marriage.

When one observes three-year-olds first rising to collaboration, for example, it is often in the form of momentary unison. They may begin beating their blocks on the floor in sporadically parallel contagion rising toward some rare moment when all are in accord. There is no question that when such accord is achieved through games between the ages of three and five, it is done in the teeth of imminent collapse into the disorder of egocentric impulse or simple incompetency. Just as contrarily, however, the children themselves having achieved some degree of order often show much enjoyment of breaking it down into disorder, so that sand castles built with much co-operative effort are hilariously destroyed, and blocks tumbled down. Here the contrast or antagonism between social order and play liminality (Turner, 1969) is mirrored in the play activity itself.

The other end of this orderly ritual dimension may well be games of vertigo which Caillois has called to our attention (1961). These are in defiance of the usual sensory-motor orders. Children as well as adults gain great pleasure from whirling and whirling round on blocks of ice

(Eskimoes), etc., from swinging, sliding and tobogganing. The very physical and impulsive forces which must be brought under control in the former games, are given indulgence and in a sense, a new order of their own.

Even games of skill may be arranged along a similar dimension with regard to the extent to which they deal with the issues of order or disorder. Many games of skill hinge on not breaking down, or not misstepping, or on not missing one's turn. The cumulative games of Hopscotch, Jackstones and Jumprope, which are traditionally games of girls, all have this character of using skill as a way of establishing cumulative order, rather than as a means to some dramatic outcome such as capturing an opponent. At the opposite end of such a dimension may be the disorderly contests in which the effort is made to make another player lose his control. There are games of steadfastness, for example, where one must not laught until a certain signal, as in Poor Kitty, where one must pat the head of kitty on all fours without laughing. To laugh is to take his place. Or the Tlingit Indians have the game of "Ha-goo?" in which if the opponent laughs when questioned, he is captured by the questioning team. They in the meantime do every ridiculous thing in their power to make him laugh (HRAF).

One can generalize that across these three sets of dimensions with their opposing role of order (imitation, ritual games, contests) and disorder (mimicry, vertigo, steadfastness), the orderly pole always exists in distinction to some disequilibrating force of the natural or cultural type or some internal psychological disorder. The play activity is an attempt to bring order out of that other chaos, or other disequilibration. However even the order in these games often breaks down into disorder, and that inadvertence may sometimes itself give rise to enjoyment. At the other end of the dimension, it is disorder itself which is directly enjoyed, and yet paradoxically organized to prolong that possibility.

The Games of Order and Disorder

To this point then I have described pure games of order, as well as their frequent more or less inadvertent collapse into disorder, and pure games of disorder and their more occasional absorption into games of order. The games of order and disorder with which I wish to deal most centrally, however, contain both elements as a part of their explicit rule structure. They are not any more important than the other examples, in fact judged by quantity, they are probably less important. Their interest lies in the encapsulation of the order-disorder dialectic within their own structure, rather than being manifested in breakdown or in relationships between games and non-game behavior. These games may be arranged tentatively as a series of structures of succeeding complexity, and it can be shown at least anecdotally from the HRAF and other sources that they are to found in tribal as well as higher culture.

Level 1. Everyone acts at the same time either diffusely or more or less in parallel, and the outcome may occur to one or all. The outcome is usually a major collapse.

The most obvious example in European culture is Ring a Ring of Roses, where all proceed in an orderly way, until the last line, "Ashes, Ashes (or A tishoo, A tishoo) they all fall down," where everyone collapses on the ground. Malinowski describes Trobriand Island games where all the players holding hands like a long string wind around each other until they are a tight ball, then they run it out until it breaks and they all fall down or apart (Sutton-Smith, 1959, p. 24). The same type of game is played in western countries, but often without the emphasis on breaking apart (and is, therefore a ritual game as described above) and without the subsidiary sexual satisfactions to which Malinowski alludes. A game from D'entrecasteaux in Melanesia is described in which "the children all squat in a row on their heels and pass their hands between their legs, clasping the back of the left leg with their left hand, and the right leg with the right. They then chant a song about the "kiwiwi" bird with an ending of 'pip, pip, pip' for which they attempt to jump backwards. Somebody invariably falls over much to the delight of the other participants and onlookers." (Lansley, 1969)

Level 2. There is role differentiation to the extent that one or more players have a central role in bringing about the collapse.

In the game of magic wand from Mota Banks Island, Melanesia (Lansley, 1969), there are two lines facing each other singing a chant about a magic wand. In order to get the wand a player must make faces and twist his body or distort his voice. If he makes the rest of the group laugh, he becomes the possessor of the wand and someone else must try to get it. There are western equivalents (Sutton-Smith, 1959, p. 57).

In the following aboriginal game about lightning striking from Australia, an artifact is used to produce the chaos. This game was popular with small girls.

"Two children stood several feet apart, facing each other, with an endless string around their necks. Each child placed a small stick between the string and began to turn it in the opposite direction to her partner until the string twisted tightly..... On a given signal, the hands were removed from the sticks and the girls pressed backwards with their necks exerting pressure on the string. This caused the string to unwind rapidly and the sticks to be fired amongst their surrounding playmates. The children hit by the sticks were said to be struck by lightning" (Salter, 1968, p. 145).

Level 3. The actions are co-ordinated in turns through a cumulating series of actions and there is a common outcome.

In Moresby straits the game of tug ear is reported as follows: "Children sit round in a circle and pile their hands one on top of another, with palms uppermost. The last child to place his hands on the pile then strokes the next uppermost palm and chants, 'He scrapes the palm, a mushroom like the ear of a grasshopper.' He then withdraws his hand, flips his lips, and takes hold of his neighbor's ear. This continues until everybody has hold on an ear in either hand whereupon everybody chants: 'My grandparent, what food shall we eat? Our yams we are eating.' Then with the words 'twist, twist,' they all begin twisting and pulling their neighbor's ears with the utmost vigor and the circle breaks up with shrieks of laughter" (Lansley, 1969, p. 87). Another example is the western game of Consequences, in which each individual writes a part description of somebody on a piece of paper, which is then folded over and handed on, until there is a cumulating description of many fictitious people as there are members of the group, and a final shared merriemtn of the absurd accounts.

Level 4. At Level 4 the actions of the players are co-ordinated as in a dramatic plot toward the downfall of a central person.

The central person, often treated with high respect, is in fact ultimately humiliated. In an early New Zealand game called the Golden Sword, the new boy was made King, seated on a throne, blindfolded, told he would knight all the others. Finally he was given the magic sword which he was to draw through his hands and lay on their shoulders. The sword had been soaked in the toilet. In the Queen of Sheba, a queen similarly announced was carefully crowned, brought to her throne and in great ceremony, she tumbled through her throne into a bucket of water beneath. There is report of a very similar type of game amongst the Gros Ventre Plains Indians. Here one of the children would be given a ritual role, decorated and be made a part of a ceremony with singing and dancing. At the end of the game, however, the child who had been coerced into the central role was taken and dumped into the water headmost (HRAF).

Discussion

The findings and orientations of this paper may be summarized in order of ascending theoreticality.

(1) First, it does seem useful to discuss ways of looking at play in terms of games of order and disorder. It makes sense out of the diffuse pastime category that previously did not make any sense. It enlarges the scope of game categorization, so that previously anomalous phenomena like infant games can be included in the same general canon of group play activities defined as having an opposition between forces and a disequilibrating outcome. The disequilibration of the outcome, however, is relatively more contrived and relatively less open-ended than in contest games. We can speak of disequilibration in games of order/disorder, whereas we would speak of uncertain outcomes in games of contest. Those familiar with developmental structural thinking will not find this partial emergence of elements an overwhelming objection (Gardner, 1973).

This new category of order-disorder games, raises more explicitly the question of the ways in which players develop their ability to constitute the original contract of co-operation to agree with the rules, which agreement underlies all competitive games. The present example suggests that unison experience may be an important prerequisite for this agreement.

(2) While the HRAF survey was impossible in the proper sense, it did reveal that these types of games were widespread. In North America, examples were found amongst the Copper Eskimo, Tlingit, Zuni and Gros Ventre. In the Pacific, amongst the Trobriand and from other sources (Salter, 1967; Langley, 1968), the Australian aborigine and other Melanesian Islands. In South America there were examples from the Yahgan, Jivaro and Caingang, and in Africa from the Amhara.

(3) The organization of the games into four succeeding structural levels was derived from work with New Zealand and American materials.

These levels of play which have been described in more detail elsewhere (Sutton-Smith, 1959) are based on several structural features; with respect to interactions, there is across the four levels a shift from parallel role activity, through central person roles, co-operative roles, to scapegoating roles, each requiring the types of social competence developed on the previous level. In Western countries such a shift would occur between the ages of five and fifteen years. There is also a shift from the episodic to cumulative to climactic use of the temporal structure (Sutton-Smith, 1971). Basically the spatial structure stays the same, that is, a more or less enclosed or circle formation. Consistent with this, the actors are more often girls than boys. The actions seem to feature a predominance of motor disorder at the first two levels, and a breakdown into aggression and hostility at the latter two levels, suggesting a socialization shift in children's perception of the critical elements in cultural order.

It is not improbable that other levels between these four may be found. While the implication is that younger children play the first levels and older children the latter, the cross-cultural data do not allow for an unequivocality with respect to the universality of such chronological sequences. It must be viewed at this point simply as a hypothetical developmental structural system parallel to the others that have been constructed for the other classes of games described earlier (Sutton-Smith, 1971).

(4) A fourth general point must be that these games are only part of a more general dimension of order-disorder with many ramifications throughout society as the other papers in the symposium will attest. The games are crystallizations of this dialectic with particular appropriateness, it seems, to the development of the young.

(5) The overview of these games along with others seems to support the view that the character of games as anti-structure is rather complex. It is easier to support the view that the game is simply a model of the rest of the structure. That is, the game is society's analogue, not its inversion. The prior cross-cultural work with John M. Roberts supports the view that major cultural antitheses are encapsulated in games (Sutton-Smith and Roberts, 1972). Games of strategy exist in cultures where strategic thinking is important: games of chance exist where divinatory thinking is important. Games of physical skill exist where motor skills are critical in adult work roles. Of course the game is an abstraction from the larger system. In that sense it is certainly different. But that does not make it an inversion. What appears to be different in the game is not so much the overt structure of actions and reactions, but rather the access that players have to them. Role relationships within normative systems, for example, are usually asymmetrical. Person A is dominant and person B is subordinate, or A is nurturant and B is succorant and no change in that relationship is easily obtained. In the game, however, such inverse changes in role relationships are often possible. It is true that some sociological thinking has emphasized that play relationships reflect normal hierarchical relationships, but it may be argued that this is a condition only in very cohesive primary groups. Most playing permits a degree of role reversibility which is not found in other relational structures (Sutton-Smith, 1966). The alienation of which Simmel speaks, which is said to be created by the normative system of relationships, can be redressed in the games. Those who cannot win in relation to fathers, schoolteachers, or academic peers may well have moments of victory in their games of chase and even when they fail, such failures will be evanescent and not the basis for deep and lasting concern by others. Games give such leeway for mastery over success or failure. According to this argument then, what is inverted is not the social form or social structure, but the players' access to the parts. But clearly, this is an argument which while fitting for most games does not apply so well to those with which we are dealing here. In games of order and disorder, the disorderly aspects do not represent what is to be found in the surrounding cultural life. Histrionics, vertigo and provocations to impulsiveness are not of the normative order. Laughing at those who fall over, grimacing and leering, countering one's body, tugging each other's ears, and dunking players in the water, are reversals of the normative order, not its exemplification. These are genuine anti-structures in Turner's sense. From which we may conclude that games contain at least two orders of reversal, a more normative one which provides inverse

access to roles, and this more specialized one in which social forms are abrogated.

(6) As a final point we must tackle the possible functions for such phenomena. My general point of view on play as enunciated elsewhere is that it is a response to some disequilibrating circumstances, and as well, an innovative source of variable responses (1973). Most theorizing on this matter has taken account only of the former part of this paradigm. Thus the games are compensations, or they express the essential alienation of the player from the normative system, or they permit his feeling mastery with respect to that system. All of these views, along with the following by Turner, imply some sort of equilibrial dynamics. Thus Turner says: "Every opposition is overcome or transcended in a recovered unity, a unity that, moreover is reinforced by the very potencies that endanger it ... putting at the service of the social order the very forces of disorder that inhere in man's mammalian constitution." (p. 93)

But what does this mean? It seems to me that this quote and the other interpretations subordinate the significance of anti-structure to being an auxiliary function of the larger structure. Whether you talk of "primary process" after Freud, "alienation" after Simmel or man's mammalian constitution after Turner, you are engaged in the basic work-play dualism that makes it difficult to think of the anti-structure except in a derogatory sense.

I would concede, of course, that this notion of anti-structure is a distinct improvement over the prior doctrine that play phenomena are too trivial to be in culture at all and are in fact merely an epiphenomenon or "projection" of real culture. It also improves on the contrary strict rehearsal doctrines which reduce the play to the strict service of other functions, as in the earlier doctrines of Karl Groos or the current work of game simulists. There is at least a real dialectic involved in this anti-structural notion. Two orders of reality are confronted, rather than one order merely replicated.

Still, it is my belief that while all these interpretations have relevance, they can perhaps be subsumed within a more comprehensive functional significance. If play is the learning of variability, a position for which we now have increasing experimental evidence, then we can perhaps say also that all these forms of inversion involve experimentation with variable repertoires. All involve the development of flexible competencies in role taking and the development of variable repertoires with respect to these roles. In these terms, Simmel's alienation would not be solely a reaction from normative commitments (though it could be that also), it would be the distancing necessary before one would envisage potential alternatives. In this view the anti-structural phenomena not only makes tolerable the system as it exists, they keep its members in a more flexible state with respect to that system, and therefore with respect to possible change. Each system has different structural and anti-structural adaptive functions. The normative structure represents the working equilibrium, the anti-structure represents the latent system of potential alternatives from which novelty will arise when contingencies in the normative system require it. We might more correctly call this second system the *proto-structural* system because it is the precursor of innovative normative forms. It is the source of new culture.

Or at least this is particularly arguable of dreams, fantasies, play and art. Whether as we move along this continuum of concretization toward games, humor, and ritual there is a subtle change toward a more compensatory balance, I am not certain. The psychological analogue is that in the healthy individual the fantasies remain open for the envisagement of possibilities and their contents directly reflect the major current concerns of that individual. But in the severely conflicted individual, the fantasies serve the role of inversion or compensation, permitting the continuance of the stressed personality.

So perhaps the question of whether our inverted phenomena are of proto-structural or anti-structural significance, must depend upon the flexibility of the larger culture of which they are a part. In a culture static with respect to the management of its abiding tensions, the inverted forms may be exactly as Turner has described them. While in changing cultures they may have more progressive significance. Thus we may be disorderly in games either because we have an overdose of order or because we have something to learn through being disorderly.

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Paper #6. A structural grammar of games and sports[*]

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[*] Paper presented to the International Society for the Sociology of Sport, Heidelberg, October, 1975.

There are many ways in which we can approach the analysis of social structures like games and sports. Some of these possibilities have been outlined elsewhere (Avedon and Sutton-Smith, 1971, chapter 12). This article is concerned to outline a sequence of structures as these occur developmentally, and as they may have occurred in human evolution. It seeks an analysis of structures in games and sports from the most simple to the most complex. We know already that at about the age of 10 years children shift from a focus on make-believe to a focus on skills. We know that the organization of their games changes about that time, from central person games to individual and team games. We know that they shift from games largely of chase and escape, or acceptance and rejection, to games of attack and defense. Interactions of a more symbolic sort (tagging) give way to interactions involving direct and often forceful contact. Gradually these individual and team skill games themselves become transformed from mob-like aggregates to more differentiated games with specialized roles, a transition which takes place throughout adolescence (Sutton-Smith, 1971a). What we seek now is a more systematic way of discussing such changes.

There is little systematic material on the possible lines of human evolution through games. Caillois has suggested a gradual shift from looser organizations towards more highly structured ones, from "mask" societies and play, to societies in which play is governed by rules (1962). Roberts et al. have argued a shift from physical skill cultures, to various combinations of physical skill, chance and strategy, with the more complex societies having all of these (Roberts & Sutton-Smith, 1962).

In this paper I wish to test out a structural system derived from Piaget's account of the development of logic. Piaget has held that there is an invariant sequence through which children and cultures develop cognitively. The success of the application of his system to various other domains of development argues well for its applicability in the present case. However, it should be pointed out that the system to be derived from Piaget's accounts is here being applied only to complexities in the development of social interaction in games and sports. This is clearly an important focus, but it is not the only possible focus. One has to consider the success of Roberts et. al. when they studied the game determining outcomes of skill, chance and strategy which are not directly based on interaction at all. Nor does the system deal with the character of the conflicts that are at the heart of games and sports (order-disorder, win-lose, chase-escape, etc.), nor does it deal with spatial and temporal elements. However, we can show as we proceed at least how some of these other elements are co-ordinated with, even if not explained by, a Piagetian type structuring of game and sport interactions.

The paper begins with an account of an interactional game and sport logic derived from Piaget. It should be clear that other accounts could also be derived from Piaget. He is not responsible for this particular formulation. The system which is expounded developmentally is then given a preliminary test against some of the fragments of chronological data that are available. There follows a brief review of some of the evolutionary cultural evidence to see if the system has some usefulness in that domain.

The Piagetian Structural System

The issue is whether the analogy of logic has anything useful to say about the structure of games and sports (Piaget, 1970). In both cases there is clearly a sequence of structures. Games like logical structures have the qualities of wholeness (they are not reduceable to their components), they are also self-regulating forms (their rules, boundaries, etc.) and they have laws of transformation which prescribe how the roles can change in an orderly manner. While games are not operations in the strictly mathetmatical or logical sense, their regulations and particularly their role reversibility, their compensations (hide and seek) present on the qualitative rather than the quantitative level, a quite remarkable analogy with Piaget's statements about the mathetmatical group. They are not unlike the concrete operations of middle childhood. In games as in concrete operations there is an understanding of the reversibility of practical operations. And as far as we can tell from observing the ages at which they occur in games this role reversibility occurs prior to the same understanding as applied to physical reality. From experimental work we know that the understanding of social reversibility can be used to induce the understanding of the physical reversibility (Sutton-Smith, 1972, p. 442).

Still beyond the noticing of these parallels (wholeness, self-regulation and transformation) the parallels between logic and games become more difficult to sustain. In fact none of the characteristics of the algebraic group (elements, combinativity, inversions and associativity) are strictly true of the game; though Piaget's prior order structure which involves mainly reciprocity and not reversibility seems more closely parallel. The order structure has regulated relationships and correspondences, and games certainly have these. Still these are all only analogies. The game operates in a different way qualitatively. In games, the subject playing is both himself as a person as well as himself as the player. As person he preserves his identity, and as player he shows role reversal (now being hider, now being seeker), which corresponds perhaps both to being the one who judges reversibility as well as being the piece of clay that makes the reversal in the standard experiment on mass. Perhaps it is this prior game play at both the subjective and objective roles (holding one constant while transforming the other) that permits the later more abstract judgments on physical identity conservation through change.

In any case we can at least by analogy use these Piagetian concepts to set up a structural system that has the promise of organizing games into the correct developmental sequences.

The system to be discussed involves three levels of social interaction, each of which corresponds to shifts in logical thought, although in general preceding that shift in logic by several years. There are primary interactions, which refer to players acting upon each other and which characterize games up until about the age of seven years (and anticipate Piaget's concrete operations). There are secondary interactions, which are a special class of interactions which serve to control the course of events in primary interactions (such as communications and coordinations of actions) (and anticipate the child's capacity for multiple classification around nine years). Finally there are tertiary interactions which refer to new classes of highly specialized interactions between subgroups of participants, and which in their turn affect the first two classes of interactions. (These anticipate formal operations at age thirteen.)

Parallel to these shifts in the hierarchical level of interactions, there is also a differentiation of organizational complexity, which matches these other shifts. We move from a unitary organization of players at the first level, to a dyadic organization of players at the second level to a quadratic organization at the third level.

These various shifts are diagrammed in Figure 1, where it can be seen that each of the three types has several subordinate levels across which complexity is increased in the same dimension. In addition, the three classes of interaction correspond to the well known play categories of central person games, competitive games and sports. The other details of the system are explained for each section in the descriptions that follow.

Figure 1 Levels of structured interaction in games

	Wholeness (type of gestalk)	Self-Regulation (type of co-ordination)	Transformation (type of reversibility)
	I. Primary Interactions		
Game Type A.	Prescriptive Games		
	Level 0 ("Farmer in the Dell")	Ritual Codes,	Ritual Reversal
Type B.	Central Person Games		
	Level 1 ("Tag")	Uncoordinated roles and actions	Role reversal
	Level 2 ("Release")	" "	Action reversal
	II. Secondary Interactions		
Type C.	Competitive Games (Group and Individual)		
	Level 3 ("Dodge Ball")	Coordinated actions roles & signals in one group	Central role reversal
	Level 4 ("Prisoners Base")	Coordination between groups	Group reversal in size
	III. Tertiary Interactions		
Type D.	Sports (Team and Individual)		
	Level 5	Coordinated external relationships (coaches, audiences) Coordinated team play with specialists.	Team reversals in posture
	Level 6	Differentiated & co-ordinated attack & defense	Defense reversal
	Level 7	Differentiated & coordinated attack & defense	Attack & Defense reversals

Type A: Prescriptive Games

Level 0: Conservation by Rote

We begin with a zero level of games which are prescriptive or ritualistic, the roles and actions being defined by traditional verses, follow the others and the verses. Neither roles nor actions need to be internalized operations. One may just follow the others and the verses. Sometimes there is a built in reversibility of actions, where orderly procedures break down into disorderly ones (as in Ring a ring a roses), and sometimes a built in reversibility of roles (as in Farmer in the Dell) where each player signals the next one to take over the central position so that the one chosen becomes the next chooser. In the first type there is no role differentiation, in the second we have narcissistic central roles (Punchinello, Pretty Little Girl of Mine, Poor Sally, etc.). The temporal and spatial elements are also controlled by the game, the length of the verses controls the role participation, and the circular hand-holding controls the spatial organization. In these games the only non-prescriptive element is the choice of the next player. No one prescribes whom the central player shall choose. If you are chosen you get to play the central identity, and then see that central identity assumed by someone else whom you choose. The egocentricity of not wanting to lose the central role is perhaps overcome by the pleasure of being the one who makes the decisions.

Still the reversibility of action participated in by the whole group, and the decision to choose someone required of the central person, are both essentially prescribed behaviors. They forecast the outcome to come, but they do not have the open-ended characteristics that are typical of games in which the outcomes are very undetermined. Here the outcomes are determined, and this is why they are here called prescriptive games, and why they are usually called pastimes. There are not the requirements of character conservation through reversibility which characterize the true fames as described in terms of the present Piagetian analysis.

Type B: Central Person Games: Primary Interactions

Level 1: Role reversibility, a single class of interactions.

True games involve the player himself carrying out reversible actions as a result of operations within his own head, rather than by externally prescriptive statements. In these most elementary of true games this condition holds. There is one dyadic class of interactions (hide and seek, chase and escape) in which players assume first one role, then the other, in each case returning to the prior role identity after performing in the other role identity. The roles are reversed, the players identities conserved. They are always the same people, even though they are transformed into different roles. In addition these games are organized temporally into episodic units. Any unit is replaceable by any other unit. There is a linkage between units (tagging or reconnaissance), but no cumulative logic. Usually there is some safe or home base, from which actions radiate dispersively. The kind of actions themselves, usually vary with the culture. The use of spatial bases, whether to leave them or get back into them, varies with culture (Sutton-Smith, 1972b), the use of physical or symbolic agencies also varies with culture. However, the centering of a single dyadic class of interactions on the initiatives of the central player and the "reversing" in and out of that role by all players, does seem to be the universal elementary from of the game where games are played.

Level 2: Role and Action Reversibility (a double class of interactions)

We now add to the prior condition the capacity of the non-central players to reverse the actions of the central player. So not only is the central player's role reversed by his own successful interaction, his success can also be reversed by the actions of others. Reversibility is now in the hands of both groups. Typically each class of actions take place in parallel. Thus in Frozen Tag, the non-central players who are tagged by the central players must stand as frozen, but they can be freed at any moment by one of the free players touching them and thus letting them go. The central player tries to freeze everyone. Those still free try to get everyone else free. This implies that the action units are bound together into a temporal sequence. The central character by tagging players in turn until he has caught all the players binds time in a cumulative way. The other players by freeing their comrades, break time down. Space is now also differentiated into prisoner space and free space. In Level one it was only safe space and free (albeit dangerous) space. Space has thus become tri-dimensional at this level.

Type C: Competitive Games: 10 Secondary Interactions

Level 3: Coordination of roles and actions (two levels of interaction)

We now introduce a new secondary level of interactions whose point is to coordinate the primary interactions of levels 1 and 2. Thus players in the non-central position signal to one another in order to contest more effectively. That is, they explicitly cooperate. This new and different class of interactions is not the primary stuff of the game, but it facilitates that primary stuff. In Dodge Ball, the players by signalling and passing to each other are able to confuse the central player and hit him with the ball. In Bull in the Ring, the circle of players by holding hands and calling out warnings are able to keep the Bull in the center. This secondary level might be termed embedded meta game interactions to distinguish them from the external meta game interactions such as counting out rhymes and arguments about fairness, cheating and the like which take place outside the game and are not dealth with here. However, we prefer to call them secondary interactions because they have to do with the organization, control and coordination of the primary interactions (or primary actions) through which the outcome of the game must be mediated.

At the level at which these games occur (around 10 years) we have a further differentiation, in game typology. Just as the two earlier levels contained central or individual players against a group of players, so now we have two new sets of games, one concerned mainly with individuals and one concerned mainly with groups. The one set concerned with groups we have described above, although there are other interesting mixed classes like Red Rover, which partake of both levels 2 (one player tags others, who if one of their kind gets across, all may run) and level 3 (the players in the centre may combine to catch one runner) and have therefore a transitory team formation.

The games concerned with individuals again have one individual playing in a group, but now every player is playing for himself. At this level there is no coordination between players but instead in the midst of mob behavior each individual seeks a personal advantage amidst random events. Thus in "Mark," one individual kicks a ball in the air, and there is a wild scramble to get and kick the ball again. Only if it is caught descending from the air and only if the child calls "mark" is he given a momentary respite to kick it freely. The cry of "mark" thus becomes a signal. Alternatively players play in pairs and the one who seizes the ball from others throws it to another who gets to kick it before he also is pulled to the ground.

We should note at this level the more seriously competitive quality of the games. In the individual games you play to win and your skill is at stake. In the group games, you maintain your position in the centre not by skill, nor simply by magical properties like tagging. So the other great shift between level 2 and 3 is a shift in the class of actions that are critical. Attack and defense now come to predominate over chase and escape in some cultural settings. Direct forceful contact may come to dominate over indirect and symbolic contact (you are hit with a ball or fist, not tagged with the fingers).

Spatially at this level we have the emergence also of linear fields, with two goal areas. Red Rover is an example. Again this is culturally relative, and as we will show later does not seem to appear prior to the development of agriculture in cross-cultural data.

Level 4: Coordination within and between groups.

Secondary interactions are now extended not only to internal group relations, but to relationships between groups. There are now coordinations between teams or between individuals which are essential to the conductance of the game. Thus in Prisoner's Base, a member of one team signals when the others may start (he issues a challenge). He is then pursued. But one of his own side can only help when one of the others has emerged from the base. There is a mutual interdependence of, as contrasted with a relative randomness, in the primary actions. In the individualistic type of games, it is now one individual against another. The interactions are carefully structured. One player's moves depend on the other's moves, as in checkers, or Hopscotch. These individual games follow tightly coordinated sequences (unlike the prior ones of level 3, Mark, etc.), and as a result the time span of actions is very greatly extended. In Hopscotch players proceed on parallel cumulative paths, returning each time to the point at which they made the last error. Days may go by as they gradually fill up the Hopscotch diagram with their own individually possessed squares. Making a mistake in these games does not return one to base, it merely halts the line of progress.

Type D: Sports: Tertiary Interactions

Level 5: Coordination by Subgroups (external)

Just as levels 1 & 2 involved differentiations within primary interactions and levels 3 & 4 involved differentiations with secondary interactions at the next levels, we have differentiations within tertiary interactions. Again as at level 3-4, there is a split into two sets of games (individual and group), but at this level we get a further split into types of differentiation at the tertiary level (external and internal).

Tertiary interactions have the same coordinative aim as secondary interactions. However, instead of being relevant to the total group and all the players, they are focused on a subgroup either within the team or outside of the team. There are thus tertiary internal interactions and tertiary external interactions.

Tertiary internal interactions have to do with specialized roles within the playing group. We have pitchers, first basemen, etc., and these players interact coordinatively with each other, which has an impact on the outcome without the rest of the playing group having to be in the particular coordination.

Tertiary external interactions have to do with specialized roles outside the playing group which serve to coordinate the total enterprise. These are the roles of referees, umpires, score-keepers, audiences and coaches. If the cross-cultural record is examined, these types of sub-group coordination seem to occur prior to the internal tertiary interactions, although some minor form of the other may often be present (goal keepers, captains, etc.). The record is simply not entirely clear. Currently in our own society game players usually move from Dodge Ball or King on the Mountain directly to organized sports which are run by school coaches etc., although these sports also have the differentiations of the next two levels. Clearly children can maintain some form of levels 6 & 7 without level 5 being present, which seems to imply that the ordering within this type of game, does not have the same logical necessity as the ordering across levels 1 to 4. The problem here, however, is partly a lack of good data about the sequences in pre-adolescence as children move out of games into sports.

Level 5 with its external members is what qualifies this type as a sport. A sport is a game which exists in a context of a larger group of vicarious players, coaches, audiences, etc. A sport is a game embedded in a communication network. If a game is a competitive event between two sides, regulated by rules in which there is an uncertain outcome but also winners, then a sport is the one event in which the organization of these various facets (competition, sides, outcome, rules and winners) is controlled and affected both before, during and after the game, by the alter group of vicarious players.

Level 6: Coordination by subgroups within the defense.

As in cricket and baseball in which the defenders are more highly differentiated than the attackers, that is the fielders are more highly differentiated than the batters.

Level 7: Coordination by subgroups of both attack and defense

As in football in which there are differentiations on both sides, and players on attack have specialized interactions with particular kinds of players on defense, etc. (pass defense). It is interesting to speculate whether bat and object hitting games, precede ball games in human history.

Empirical Assessment (Chronological Data)

When this way of organizing the material in terms of superordinate classes of interaction, which derives at least by broad analogy from Piaget's organization of logic, is compared with the empirical data, it organizes most of it very successfully. Unfortunately the data available is mainly from preference lists, so there are problems with that (Sutton-Smith, 1965). Still within the limits of the empirical data, the first four levels at least seem to arrange the gamesin the chronological order in which they actually occur (Sutton-Smith, et. al., 1963). By and large Type A can be played by children from four to five years. Type B, level one from five to six years, level 2 from seven to eight years. Type C level three is typical of nine to ten years, and level four of eleven to twelve years. The ordering of Type D levels cannot be checked at present for lack of adequate data.

The fact that the bulk of the chronological data arranges itself in the order of the first four levels (1-4) says something for the power of the present system of conceptual analysis. However, there are important exceptions and these serve remind us that we deal with a multifaceted symbolic form, which is likely to require the intersection of several systems of analysis for its complete understanding. Some exceptions are as follows:

Some contact games are played by older children but with a much lower level of organization. Thus Ball tag has the organization of level 1 (as in tagging), but involves throwing a ball to execute the tag and this ball throwing can be quite hurtful to those being hit by it. In addition younger children cannot manage the level of skill involved. From which we may conclude that on occasions the high level of skill or of pain may be purchased at the expense of lowering the level of organization. Clearly, this limits the predictive power of the structural theory although it does not contradict it.

Sometimes kissing games are also played at a much lower level of organization. Kiss in the ring is played almost like Farmer in the Dell, (a zero level) except that a spinning bottle decides the outcome. Here presumable intimacy (like contact) are difficult for the younger children to manage, though there is evidence at least anecdotally that this need not be the case. The later age level was the price in Victorian society for puritanic inhibition.

A more remarkable case is that of Hopscotch, Jacks and Jump Rope which are at the fourth level in terms of organization, but are often played by younger girls (at the second level). Here it seems the prescriptive-like ordering of the sequences of actions (not unlike our zero level games) permits their more ready assimilation at an earlier age. Thus although there is individual competition and coordination of sequences, in a sense each child is merely temporarily stopped by her own mistakes while pursuing a clearly stated line of actions.

There are other anomalies. This system does not sort out the differences between chance and strategy very well. In those games the level of interaction between the players is really not so crucial to what is going on as the levels of complexity within the player's heads or their attitude to risk taking. However, if the levels of interaction are scored, the chronological placing is accurate enough. Thus Bingo goes at level 3, checkers and chess at level 4. They are certainly playable at those ages, although chess in particular has a greater future perhaps consonant with the fact that it has a more complex internal organization than checkers. The chess board has two teams with internal interdependencies and alliances coordinated across groups and if it's in international competition then it has the external trappings of judges, etc., so makes level 7, as it should.

One could find further exceptions to the use of these ordering principles. Elsewhere I have discussed ordering games also in terms of space, of time, of conflict and of player roles and of agencies determining outcome. One has to keep in mind that a system can be useful without being exclusively determinative of the reality being conceptualized.

Empirical Assessment (Anthropological Data)

We have contended that a Piagetian-like system of interaction levels would serve to order games in a given direction. The capacity of that system to order games chronologically has been discussed although only in a preliminary way. They question now is whether the same system can be used to order games in terms of cultural complexity. If a sample of gaming cultures is arranged in order of cultural complexity, will the appearance of the games in those cultures match the system presented? We have chosen as a first preliminary set for the comparison of cultures of increasing degrees of cultural complexity: the Pygmies, the Australian aborigines, the American Indian hunters, the American Indian villagers, and the Polynesians. As only selected groups are dealt with this must be regarded as a pilot test rather than a full scale inquiry. There is, however, considerable consensus about the differentiation of these groups in terms of increasing complexity (Murdoch, 1967; Lomax and Berkowitz, 1972).

1. Pygmies

The pygmies are usually taken as the bottom line in any scale of cultural complexity. And in recent years Turnbull's account of the Ba Mbuti (1962) has been regarded as the most authoritative. Although he has a chapter on play he mentions only three games. An examination of the HRAF files for the same group corroborates one of these as mentioned by earlier anthropologists (gambling) and adds two others (spear throwing and tug of war). The two children's games described are at level 3 and the three adult games described are at level 4.

Turnbull's games of children are described as follows:

> "There were always trees for the youngsters to climb, and this is one of the main sports even for those not yet old enough to walk properly. The great game is for half a dozen or more children to climb to the top of a young tree bending it down until its top touches the ground. Then they all leap off at once, and if anyone is too slow, he goes flying back upward as the tree springs upright, to the jeers and laughter of his friends." (p. 128)

> The second is a game of chase.

> "They will also play hunting....If they can't find a frog they go and awaken one of their grandparents and ask him to play at being an antelope. He is then pursued all over the camp, twisting and dodging among the huts and the trees, until finally the young hunters trap their quarry in the net, and with shouts of delight pounce on him, beating him lovingly with their little fists. They then roll over and over in a tangle with the net until they are exhausted." (p. 129)

If we assume that those who are to jump off the tree are coordinated by the signal that the tree has touched the ground, then this is clearly a level three game. The scapegoat who misses is not defined except by his lack of ability to play the game on level three. If he is at an earlier level he shouldn't be on the tree. The game is interesting also as fitting the type of game I have described earlier as a game of order and disorder (1972c).

These are games in which children act together first to set up some orderly or rhythmic procedure (swinging on the tree), then act in concert so as to break down this order into a state of disorder. The appearance of such a game amongst the pygmies adds support to the contention that this is the most basic and universal of all games. It is the prototypic game.

The second game may simply be a game of chasing and as such would be level one. However, it seems clear that the group is chasing the quarry, which means they are acting together. As they use a net to catch the quarry we can assume that they must coordinate their actions together and this places the game again at the level three.

At the adult level we have report of only one game for the Mbuti by Turnbull, a gambling game called Panda:

> "This is a gambling game in which beans are thrown on a mat, or on a flat piece of ground. Some of them are quickly scooped up by one of the two players. The other looking to see how many are left, has to estimate at a glance how many his opponent has taken. He then tells his opponent to throw down one, two or three beans, or stay as he is. The count is then made, also at a glance, and if the player has an exact multiple of four he wins. But against villagers, Pygmies always win. For one thing, they have an uncanny sense of form that enables them in a moment to know the exact number thrown down. And for another the villagers are not so nimble as the pygmies. When a pygmy sees that he is going to lose by a couple of beans he quickly drops them from the store he has concealed between his fingers, or even in his hair, thus by a triumphant jerk of his hands or his head throwing in the winning beans." (p. 139)

As both players have to coordinate their turn taking actions with each other this is a level 4 game. There are similar accounts for the Mbuti in the HRAF files. The files contain two other games, one of spear throwing at fruit in which the players take turns (so are coordinated in actions), and one a tug of war between the sexes. Both are level four. Tug O War is described as follows:

> "The tug o war separates the sexes and although it is primarily an adult game, youths and children sometimes join in.... A man may, and sometimes does, pull on the side of the women, to make a better match, but he may go to their side to help and then start pulling in the opposite direction. It is then up to the women to decide whether they are better at continuing to pull or whether it is worth their while for two or three of them to attack the man. They themselves will sometimes leave their side and go to the men's side and simply try to pull them away from the vine rope. No restrictions were evident and each contest continued until the complete collapse of one or another....the women seemed to win more frequently. An immense amount of energy was dissipated in this way, yet one tug of war would follow another for sometimes as long as an hour."

There is hint here of role differentiations within the teams. The women or men who interfere with the other team may become specialists, in which case this particular level four game is on its way to a higher level. Still what we have is not systematic, and certainly not a coordination at a subgroup level.

In this, supposedly the simplest of human groups, we have two level three games by children and three level four games by adults. This is not really a level of any great simplicity. Perhaps we need to remember that Lomax also found the pygmies to be quite sophisticated in their music (1968). He says "African pygmies and the bushmen are famed wits and accomplished vocal polyphonists, their songs reflecting the harmonious internal balance of cultures that have endured since the dawn of human society" (1972, p. 238).

It is difficult not to draw the conclusion that where any orderly human society exists within known human history, then games will be found to be present. In the present case the levels of games do not of course explain the presence of games. Elsewhere it has been argued that the game is a cultural invention which is able in its binary form to give a dialectical expression to underlying conflicts in the playing group (Sutton-Smith, in press). The use of trees to escape dangerous animals and the hunting of animals are critical matters to pygmy culture. We would insist that children growing up in this culture must both identify with these performances (to climb trees and to hunt), as well as feel the opposite inclinations to avoid the dangers that are inherent in either path. The game allows both sides of such ambivalent reactions to be expressed. A game exists to mediate ambivalence.

Although pygmy society gives a remarkable example of harmony between the sexes, a harmony which is at the basis of their contrapuntal musical competences according to Lomax, each sex has a separate role, there are arguments between husbands and wives, and a tug of war can give expression to either side of these group differences. The tug of war says, in effect, we can struggle against each other, yet end up with compatibility because a game is after all a collaborative decision. Such examples serve to highlight that a structural system is essentially taxonomic rather than causal in its contribution.

Australians

According to Murdock, two of the Australian groups have no recorded games (Murngin & Tasmanian), for three groups there is insufficient information (Kariera, Wikmunkan & Wongaibon), and for three there are games of physical skill only (Aranda, Tiwi & Dieri). In his survey of the literature, Salter found some 94 different types of play activity, 52 of which he names as pastimes and 42 as games (1967). Most of these can be classified as levels 1-3. Salter relies heavily on Roth's study of the Queensland aborigines as well as other older perhaps less reliable ethnographic sources. Nevertheless the 13 team games that he describes from different areas have similarities and a distinctiveness that set them apart from team games in other parts of the world.

The team games are largely level IV in our terms, and are divided into two major classes, those involving fighting (via wrestling, spear throwing, boomerang throwing and tug of war), and those in which one team endeavours to keep an object away from the other team, the object being a stick, ball, boomerang, etc. It is significant that in none of these team games are goals scored, nor are there goal territories. In one there is mention of the team holding the ball occupying the central territory, until the ball is repossessed by the other side. There do not seem to be clear boundaries in time either. The game is pursued until one side gives up in fatigue. The games are played between tribes, clans and sometimes the young versus the old men. In the latter case for the possession of a stick which is said to be a symbol of a young girl. Again the game is pursued for hours until one side gives up in fatigue. Whether the relative lack of boundaries in space and time in these games is characteristic of nomadic groups is worthy of test.

There are several elements, however, which begin to suggest a slightly higher level of organization (level five). In some of the intertribal tournaments there are referees appointed, and in several games there are auxiliaries (boys, women, "gins" who encourage the players or return their equipment to them -- boomerangs -- when thrown). But more importantly there are accounts in which the sides take turns at attacking, then defending. In one such case one team of wrestlers is appointed to guard some weapons placed in their centre. The opposing team sends in its wrestlers one at a time, in an attempt to reach the weapons. "As the attacker disposed of one defender he was confronted by another, and so on until he was defeated, whereupon a team member would take over. This continued until the attacking team was all defeated, or had reached the weapons in the centre. The victorious team had the right to select one of the weapons as prize....After resting for an hour, the teams reversed their roles, the attackers becoming the defenders, and the game continued until the other weapons had been won....This "all-in" wrestling match sometimes lasted for a whole day and involved as many as several hundred men" (Salter, 1967, p. 84).

Clearly the tournaments and the referees and the helpers make these team games into level five. We are at a higher level of complexity than the account of the pygmy games. Still we must remember that these team games are themselves a minority of the games played, and most of them are solidly level four as in the wrestling match just described.

Hunters (Eskimoes)

In terms of complexity, after the African gatherers and the Australian gatherers, we come to the Amerindian hunters, a cluster of hunters and fishers of the American arctic and the northern plains with those of Mato Grosso, the Gran Chaco and Patagonia. For the present purposes Glassford's excellent account of the games of Eskimoes of the MacKenzie River delta will be used as the data base (the villages of Inuvik, Aklavik and Tuktoyaktuk).

While there are striking differences between Australian and Eskimo play, there is little difference in the level of team organization. It is true there are some examples in Glassford of the higher level five organization, but most of these he himself discounts as not known by the older Eskimoes and most probably introduced (Football, Baseball and Prisoner's Base). Two of the Eskimo team forms have particular interest because they are an example of a prescriptive contest in which the individuals go through a series taking turns (as in Hopscotch, Jacks, etc.). A team form of Cat's Cradles is mentioned, and a Ring Pin game in which the players proceed through a preset series of moves in inserting the ring over the pin. These are level 4, but we have no example of this kind of thing in European play.

Other team games include a game of Ring Toss (like quoits) in pairs, a Tug of war (between summer and winter), and a game of Handball in which one group keeps the ball away from the others (much like the Australian games). The universal Hoop and Stick game occurs in two-team formation, with one group rolling while the other throws. This alternating of turns parallels the Australian example we gave of taking turns at attack and defense. It's an intermediate structure between level 4 and level 5 perhaps, implying a new form of reversibility.

The major way in which these Eskimo groups differ from the Australian ones is in the truly incredible amount of level four individual self-testing. As Glassford points out there is little true competition in much of this. The players simply take turns one after the other. One suspects there is a great deal of learning about relative skills involved, which is important when the individuals must collaborate with each ohter on the hunt. When on an ice flow fighting a polar bear one needs an intimate knowledge of one's companions' competences. Self-testing is acrobatic, involves Leaping, Kicking, Jumping, Throwing, Juggling, Balancing, Follow the Leader, Archery, Walking on arms, Races, Walking on elbows, etc. There are also many individual contests (level 4) of endurance and strength. Players contest with each other in pulling ears, mouths, testicles, punching, skewering with pointed sticks, in pushing, pulling, arms, heads, fingers, hands. It is as if they must learn to endure tremendous pain, and keep the body incredibly supple and agile.

Although the Australians also have many tests of skill (throwing spears and boomerangs at targets, Jumping, Tipcats, Tops, Ball Spinning), there are very few individual contests apart from wrestling and stick fighting. There is more activity on a group level than the individual level. There is more emphasis also in the Australian collection to games of chasing and searching, and as we have seen many more non-competitive pastimes or amusements. The flavor of aboriginal play is much more relaxed and less strenuous than the flavor of Eskimo play, perhaps reflecting the difference between the adaptive struggle in the two cases.

Glassford's Eskimoes also have games of chance and this is similar to Murdock's Ethnographic tribes in which the majority of the Eskimo tribes recorded have games of chance (16/22) whereas none of the Australian groups had such games. The Roberts and Sutton-Smith account of the correlates of games of chance applies with particular aptness to the Eskimoes (1968).

In sum, while the Australians can be distinguished from the Eskimoes in terms of the Roberts et. al. categorization, they are not distinguished at the upper levels by the present analysis. At the lower levels, however, the Australians clearly have relatively more games. What we have in this contrast, therefore, is a shift in the proportion of the games recorded at the higher levels of three and four over one and two. Specific numbers are not cited here because of the lack of any assurance about the samples of these cultures with which we are dealing. However, if the Salter survey of the Australians and the Glassford survey of the Eskimoes do happen to represent the distribution of games in those groups with any adequacy, then the Eskimoes clearly show a higher level of complexity paralleling their greater complexity in terms of other cultural measures.

American Villagers

These are the corn farmers of the Eastern woodlands and prairie areas and the pueblo-dwelling, dry wash irrigationists of the Southwest. In these groups, corn farming fosters larger communities, tribal confederacies and clan based community organizations. In the present case we will use Salter's account of East Coast games of the Shawnee, Huron, Iroquois, Delaware, Cherokee, Natchex and Creek (1972). According to Murdock's ratings these all depend for about 50% of their livelihood on agriculture, and for the other 50% on gathering, hunting, and fishing. They have games of physical skill and chance, but not games of strategy.

Salter describes their conditions as follows: the inhabitants of these communities were "the most sedentary east of the Rocky Mountains. They constructed definite towns and villages, which were often palisaded against attack, and houses permanent enough to be occupied for a number of years. The inhabitants of these communities were primarily involved in horticulture, although the nature of the soils and the limitation of native farming techniques demanded that new farm lands be cleared at intervals of between five and twenty years. The result was a periodic shifting of settlements. Although corn was the dominant crop throughout the area, beans, squash (or pumpkins) sunflowers and tobacco were also cultivated and were of considerable importance. Agricultural products nevertheless probably furnished only about one half of their necessary food supply. Hunting was still important, particularly in the Northest; wild plant foods, especially nuts and rice, were extensively harvested throughout the area; fish were caught in considerable numbers by the coastal and Great Lakes tribes..."

What impresses one about the games of this group is the much clearer level of organization throughout. There are clear specifications for the selections of the players, for their preparation and the game time and space is organized as is the scoring and the equipment. In addition instead of team games being a small minority of all the games played, they are the major tradition.

As contrasted with modern thought, the major team game is a game of chance or guessing, the bowl game. Usually the number of players is limited. Players may be chosen by trial (dream guessing) and when chosen, may have to fast or be purged or be ornamented. While there are occasions when everyone participates these seem to have been the exception. Usually membership of one team or another is decided along moiety lines, but in fertility games the division can be by sexes, and there are occasions when the young go against the old. Typically the contest might be described as that between the sun and moon, earth and sky, east and west, representing forces of a climatic order important in the agricultural world.

Within teams we have an increase in the specialized roles. There is the person who initiates the game by throwing out the ball (in Lacrosse). Often he is the patient seeking the cure, and he gets to possess the ball when the game is over. In the Bowl Game there is a scorekeeper and a variety of equipment (counters, etc.) for keeping score. In Lacrosse we have goalkeeprs and perhaps even other roles. We also have visiting teams that go from dwelling to dwelling. But most important and significant from a structural point of view is the appointment of the game organizing committee! Salter writes: "As the Midwinter bowl game was a gambling game, a committee of four, consisting of a man and woman from each moiety, was established to supervise the contest and its associated betting. This committee appointed several runners to circulate throughout the community and collect the stakes to be wagered on the outcome of the rite....In addition to the individual wagers made each moiety placed a team bet, usually of wampum, which hung in the longhouse until the contest was decided.

> The game, contested between moiety teams, began with a thanksgiving address and instructions that the "Betting Day' rite was played to please the Great Spirit and should thus be contested with this in mind.... The committee charged with running the game settled disputes and was responsible for establishing team playing order....(1972 pp. 137-138).

What this means is that in addition to the two groups that play the game, we now have another group that controls it, and although we have seen moments of refereeing in the Australian records, the existence of such an institutionalized group of organizers does not show itself. It is of interest that the major team game in these groups of tribes is a chance game and that gambling is central, and that a redistribution of goods is often involved, because this may imply that the first sports historically speaking were associated with chance, not physical skill as is usually supposed. That is, if we define sports in terms of the emergence of the novel organization which has power over the dual organization already established in the game.

Other elements that are new with these groups are the organization of space along linear lines (sometimes 50 yards, sometimes a quarter of a mile) with goals at each end. The important role given to compass directions in laying out these fields and to ascribing the contenders in the same terms, or as moon versus sun etc., strongly suggests the importance of agricultural concerns in setting up this spatial organization. It seems that the agricultural field and the playing field (when organized with goals) have much in common. We see also an organization of temporal limits that the Australians did not use. They played until they were exhausted. These villagers play on a certain day of the festival, until say, three goals are scored.

There is also a new emergence of great concern over the play ethic (although this may only be a function of the superior records). There is a conflict between the great emphasis on the importance of the manner of playing as that which is important to the gods, for reasons of fertility or for the medicinal value to a patient, and the concern with the value of the goods and possessions which are to be redistributed.

Polynesia

What one notices in the Polynesian group of Hawaii, Tahiti, Maori, Fijian, Samoan, Niue, Tongan, Rotuma, Society and Marquesas brought together by Jones (1967), is an incredible abundance of games, including team games, but in particular a profusion of sports. In many of their games there are judges, attendants, presiding royalty and large crowds. This is often true of foot races, canoe races, cockfighting, lotteries, boxing, wrestling, stick fighting, archery, dart-throwing, javelin, bowling, pitching, bandy and mimic battles. In addition to the number of such sports, a larger role is given to *judges* in these events. They determine the scores and settle disputes. This increased role of "authority" as against sheer skill in the judgment of outcomes seems to be a relatively new element. There is also an exultation in victory, rather than a declaiming of the spirit of the game as with the Indians.

Conclusion

A seven level system for the description of the increasing levels of interactional complexity in games and sports has been pilot tested both against chronological data and anthropological data. In both cases it seems that the different structural levels appear to discriminate effectively in these terms. It is also clear that in both cases there are important exceptions which require other conceptual paradigms to account for the data. Furthermore, it also appears as if with a more comprehensive set of chronological and anthropological data, intermediary levels will be found within present systems. Alternating as attack and defense, and taking turns as teams, seem at least higher forms of the level four organization. We have noted the level three approximation to teams as transitory forms (as in Red Rover), whereas the basic form at level four is of two groups that can take prisoners (Prisoners Base). Perhaps the conservation of one side throughout the engagement is higher level at four (Relays) with turn taking and attack defense alternations being still more complex organizations beyond that. Still these matters will be the subject matter of subsequent papers.

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IV. RESULTS

(B) NARRATIVE

Paper #7: The Importance of the Storytaker: An Investigation of the Imaginative Life

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in collaboration with storytakers:
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The most important curriculum conclusion from this study can be stated simply and directly. If you keep asking children to make up stories for you and show some delight at the stories they tell; and if you keep coming back and asking for more stories, then the stories get better and better. There appears to be clear signs of an increase in their narrative competence just because you have been a good and rewarding listener. Children also progress from telling you stories to wanting to write their own stories. The most important practical conclusion from this study is that almost anyone, including parents, paraprofessionals and students can play this role in the classroom. The only precaution is that they should enjoy children's stories and enjoy them no matter what the children put into them. That is, they must act more like permissive play therapists than nonpermissive puritans. The most important theoretical conclusion to this study is that there is a series of definable steps through which children proceed when encouraged in this type of creative activity. This is a particularly important finding, because although many teachers have encouraged creativity, they have not always found it easy to know how to measure the steps in a child's progress. More important, they have not always been sure that such steps would occur simply by their being permissive. As we shall see, such progress is not assured in all the arts, but in this oral one, it probably is.

Storytaking and the Curriculum

The present study is part of a more general inquiry into child development through the creative arts. Elsewhere, we have maintained that there is lacking a developmental psychology of the arts.[1] For various reasons, artists and psychologists have neglected to map out the normative steps through which children proceed in the creative mastery of various art forms. This is partly due to the reluctance that artists have to commit themselves to any such normative idea. Only in the area of children's drawings has there been an extensive application of stage descriptions and stage theorizing. And yet in several studies, we have been able to show that there is also such a stepwise progression in other art domains, including improvisation[2] and aesthetic judgment.[3] Cornelia Brunner, for example, has shown that in the appreciation of visual art children advance through developmental stages that have a parallel to various classical theories of aesthetic judgment. Thus, the youngest children in her study (seven-year-olds) were "realists." Pictures are good because they tell you the way things really are. Nine-year-olds tended to be moralists. A picture is good because it tells you how you should behave. Eleven-year-olds who progress any further tended to be structuralists. A picture is good because of color and form, etc. For that minority who developed further, there was increasing concern next with the effects on the audience, and later with the problem of the artist and the way in which he communicates to that audience. These may be termed steps 4 and 5, the stages of communication and empathy. What Brunner found was that few adolescents and few adults reach these latter stages. What this means is that we can have a stage theory of aesthetic judgment, but that very few people are going to make it through all the stages. One has to think of the influence of "pictorial realism" or "moralism" in judgments about art to realize that the majority of the population does not proceed beyond such elementary stages. In the study of improvisation also, we found that although most of the volunteer children (ages 6 to 12) in that research improved in the informational quality of their dramatic improvisation as they got older, they did not get any more theatric. In fact, in the ratings of several of my student observers, June Reinisch, Barbara Herman and Debbie Burke, on such variables as enthusiasm, body movement, involvement, imagination and communication, the older children were less adequate than the younger ones. In another study, by another group of students, Amy Miller, Steven Goldman and Nancy Astor, in which improvisations, drawings, and stories from the same children were compared, it was found again that although the older children were more complex and showed more detail, they lacked the vitality of the younger children, who demonstrated interesting statistical correlations between such phenomena as color in drawings and the capacity for communication in improvisation. We reached the conclusion that while intelligibility might increase with age, sensibility did not necessarily do so.[4]

This was not a profound conclusion to have reached if we think of the overwhelming importance of science and information in the modern world, even though it is a dismaying one from an educational point of view. As most of the present teaching staffs in schools are at elementary stages of artistic development (music, graphics, movement, improvisation, mime, plastics), then there is probably very little we can do about it. One of my students, Danny Gildesgame, who specializes in the study of children's drawings, has frequently demonstrated for us that most of the adults and teachers in his audiences have a drawing mental age of about seven years. Probably, only if teachers as trainees go to colleges that help them to grow through the arts, or if artists become teachers, can we do much to radically alter the present underdeveloped levels of artistic development in the general population. What we have is a bimodal distribution of the population with most of us at the lumpen end, and a few of those with specialized training at the upper end. It is not surprising that the few at the upper end imagine that they are there almost entirely because of talent and not because of training. Mozart himself has probably done more than any other person to undermine the idea that development in the arts can be programmed. From our point of view, he was simply a rapid processor of the educational input available to him in the first few years of his life, and that input was undoubtedly received with the simple before the complex, or, as we like to say, in some step-by-step process.

As it happens, storytelling narrative as an art form is potentially not subject to the limitations that occur for the development of most art forms in modern culture. Because words are central coins in scientific civilization, most children going to school will show considerable development in their verbal competences. Most children will develop from concretistic to more abstract uses of words as long as they have an average or better amount of intelligence. Furthermore, most children are exposed to endless hours of television and movies, through which they have received inputs about narrative structures. Whether they are watching "Bugs Bunny," "Lucy," or "As the World Turns," they are being exposed constantly to the fate of heroes, comic or tragic, with whom they can identify. Unfortunately, in many schools in which the emphasis is on written work and not on dialogue, children often get little opportunity to respond actively to this quite enormous input. They are forced to remain on the level of acquaintance knowledge, rather than develop to a level at which they themselves can actively reproduce and even introduce novelty into these narrative plots. Teachers have been heard to say, for example, "Oh, I'm tired of those endless monsters; my students are always writing about them when they are allowed to just make up their own stories. I want to teach them how to write about things that they need to know." Which means that although the materials are there for the active development of competence in narrative writing (because of the developed verbal ability and the input of plots in mass media), often this type of artistic development is also neglected.

It is an important argument of this paper that here, at least, is one area in which we can help artistic development immediately, without awaiting teacher retraining in the various arts. The project of making the arts more central in schooling is going to take longer for music, movement, mime, plastics, improvisation and graphics; but it can proceed immediately in the domain of storytelling, if we wish.

The Practical Art of Storytelling

When you say to children, "I'm interested in the stories that children make up all by themselves," there is often an immediate response from those who are better adjusted and those with considerable verbal ability themselves. There are the high fantasizers, whose parents have told them stories and shared imaginative activities with them from the earliest years.[5] Such children give you stories that get richer and more complex as the months go by. Even by the age of seven or eight years they can tell stories that go on for 20 minutes or more. The children who refuse to tell stories or are most upset by the request are those who, in our study, are more likely to be having trouble in their relationships with parents, teachers, and other children. Some of the shy, in-between children may take several weeks or months to respond to the invitation. However, when they see other children enjoying it, and having their stories returned, typed out on paper, then they may offten a story also. Sometimes other children are drawn in when stories are told by several children together, each adding information to a story they all know (from television), or each independently adding new twists to the plot. Sometimes older, intelligent (but defensive) children prefer a very well structured situation as in the narrative game of "Fortunately". . . (one child begins). "But unfortunately". . . (another child carries on). Sometimes children tell tales freely after they have told us a dream, but this is more likely to be true of five- and six-uear-olds than of nine- and 10-year-olds, who by then have acquired the customary cultural inhibitions about dreamtelling, as well as its conventions about privacy. Other "tactics" that particular students have used to draw out stories have included the use of the tape recorder, rather than writing the stories down. Children like to hear the playback. Sometimes they prefer it when you are not there. Another technique has been the use of videotape, where the child sees himself both telling the story and acting it out afterwards. We have found that in these freer circumstances, children often get themselves going by "bits of business" before and during the narrative. They act out parodies of television commercials, recite jingles or sing songs, or lapse into obscenities. When any of these intrude upon the narrative, then narrative is assured in this relationship even though it may be occasionally sidetracked for the enjoyment of these other pleasures. It is at these times that the storytaker must take rather seriously his vocation as permissive play therapist if this relationship is to prosper. Yet other methods are to have a child do a drawing first: to let him tell a "real" story, which many say they prefer to do, or to ask him to tell about a "pretend" game, and perhaps even to close his eyes and tell whatever he sees.

With chidren whose problems are such that they never seem to want to tell stories, then casual storytaking efforts are clearly not enough.

Here we need a storytaker who is prepared to spend days building a rapport with this child. For the reader interested in the lengths to which such a clinical storytaking art can be taken, we would recommend Richard A. Gardner's book, Therapeutic Communication with Children (N.Y.: Science House, 1971).

Prior to the phase of storytelling that we will describe in the next section, some children tell stories that avoid the types of conflict we portray there. Sometimes they lispingly reproduce stories that they have heard, as adequately as they can. We assume that such modeled reproduction may be a first step in any acquisition of competence at art forms. Recently Eli Saltz and James Johnson at Wayne State University in Detroit have laboriously take preschool children through the steps in fairy tales, rehearsing them in how to act out each part of the story. With repetition, they found that the children not only became more competent at acting out these stories, but also more competent at remembering other stories and telling other stories, as well as showing a higher incidence of spontaneous social dramatic play in their free play time.[6] There may be something very valuable in structuring the steps one by one for those who are at that level of immaturity. As mentioned, many children make the first step themselves simply by retelling, say "Red Riding Hood" in a fairly static way. It is our assumption that this may be practically the end of the process of narrative development for many of the population. If they are never given the encouragement to proceed any further or helped in working stories through step by step, they can respond to these highly redundant plots in our culture only in a fairly static, vicarious way. One can think of the analogy of the computer and consider the many mass media stories, as repetitive programmatic imputs, which because of their incredible frequency finally establish a vicarious base in the receiver's brain. Children typically watch many thousands of hours of cartoons, just as many of their parents watch many thousands of hours of television melodramas. In this respect, the members of modern society are little different from the members of tribal societies, who spent their evenings listening to folk tales and folklore endlessly retold. In both cases, the acquisition of mythic content is facilitated by endless reptition.

There are other children, who while they rise above the static reproduction of folk and fairy tales, nevertheless seem unwilling or unable to deal with themes of conflict in the stories they tell. It might be argued that this is perfectly natural. Life is nsot all conflict. There are other things to tell stories about. However, in our experience to date, more than 90 percent of the stories we have collected deal with some lack that must be removed or some threat that must be nullified; that is, with potential conflict. So the nonconflict stories are particularly puzzling, often because they include hints of conflict which do not fully appear. As we collect our tales from the same five- to 10-year-old children over time (we are now in the second year of such a longitudinal study), the evidence seems to add up to the view that children who can tell good stories (and are not simply avoiding it) sometimes still avoid dealing with their underlying conflict by telling stories that have a mainly descriptive or a mainly humorous quality, in which any action and counteraction between characters of people and things is omitted, perhaps even denied.

About all we can say at this point is that we are studying these children. Some of them, we know, have alternative modes in which they find free expression: for example, through painting. We are aware that one must not draw conclusions about a child from apparently inhibitive behavior just in one area. There is for each child an "expressive" profile across his play and his arts, and his energies are not equally distributed across all forms. While we found, in an earlier study, that differentiation across aesthetic types was more typical of girls than of boys (the boys tended to take a global approach to the arts), we are reminded that in the area of games, the opposite occurs, with the boys being more differentiated and the girls more globally good or bad.[7]

When we are lucky, the children who originally will not tell a story proceed along the lines of a particular boy of eight. He was disruptive in the classroom and refused to participate in taletelling. His first stories were about Stupide, a character constantly being put down like the moron of the riddles. As this character developed, so did the boy's tales become more agressive. Stupide began to give vent to his hostilities. Later Stupide's stories became increasingly well structured, but peppered with obscenities. Parallel to the change in the stories, there was a general rehabilitation of the boy's classroom behavior. Now we cannot prove that the opportunity for self-integration and personal innovation that the storymaking provided helped this boy to test out new behaviors in the classroom, but that is what play therapists have been telling us for a long time.

In what follows, we will be showing that most of the chidren's freely told stories deal with some sort of conflict. While it is difficult to get a few children to tell stories, most quickly do so and quickly seem to use storytelling as a means of representing conflicts over power and powerlessness, acceptance and rejection.

The Stages in the Development of Narrative Competence[8]

As a result of our storytaking from children, we have observed not only that they ger more competent in telling stories, but more importantly, that between the ages of five and 10 years children go through a series of stages in telling a story. They gradually put together the structure of an elementary soap opera in their head. In more technical terms, they develop narrative competence. Clearly this is a most important dramatistic and cognitive acquisition, and it is our hope that in tracing the stages in its acquisition we will help teachers to bring it within their own pedagogic focus. Once one knows what children can do and the steps through which they will normatively proceed, it them becomes much easier to experiment with the pedagogical devices that facilitate that development. This is really what the developmental psychology of the arts is all about in practical terms.

Below we trace four stages in the development of narrative plot. We realize that there are many other grammatical and linguistic aspects to stories, but in this paper we are focusing only on plot. Early, it became apparent to us that older children completed more cumulative stories than did younger children. The stories of the younger children usually seemed episodic or diffuse. At that point, we were looking at stories from the perspective of games, which we had elsewhere described in terms of stage theory of development.[9] We were surprised to find that stories followed a very similar pathway, and that some of the steps had already been described in the work on folktales by two anthropologists, Elli and Pierre Maranda of the University of British Columbia.[10] According to them, in tales that involve conflicts, four types of response are possible: (I) tales in which one power overwhelms another and there is no attempt at response; (II) tales in which the minor power attempts a response but fails; (III) tales in which the minor power nullifies the original threat, and (IV) tales in which not only is the threat nullified but the original circumstances are substantially transformed.

Tales of the last sort are like hero tales in which having destroyed the monster the Prince returns, marries the Princess, and takes over the kingdom. These steps of the Marandas may be regarded as stages in the development of the hero tale. In many cultures where there is little belief in the possible control over one's own fate, tales seldom rise above the first three levels. According to the Marandas, within American culture, children during their development tend to pass through these levels. They report that the younger children reduced the structure of the tale that was told to the plot level of which, at their age, they were capable. Being told a level IV tale, they reduced it in the retelling to a level III or a level II -- whichever level they had themselves reached. The present paper presents the results of scoring children's own stories and then comparing the plot level with the age level to see if there is a significant upward shift with age. The subjects were 60 children from four classrooms, including 20 five- and six-year-olds, 2- seven- and eight-year-olds and 2- nine- and 10-year-olds, with each group divided equally by sex.

One story was taken from each child. Scoring the children's stories required the adaptation of the Maranda levels to the present materials. There was a considerable difference between the articulate adult folk materials on which their scoring was based and the fairly diffuse children's-stories that were the subject of the present study. Still, it was our general conclusion that the Marandas' four levels were, with some modifications, applicable to the present material. There follows a definition of each of the levels as we have used them with illustrative stories. In all cases, the central figure is the one most frequently mentioned. This is usually the "small" or "lower-powered" individual or animal. There are cases when it is difficult to decide who is the usbject of the action. It is useful to think of these situations as a struggle between forces, rather than people, and then decide from the outcome whether there is response to the initial threat, whether that response is a failure, whether it nullified that threat or whether it transforms it.

Level I. The most common response at this level is that the subject is threatened or overcome by a monster or there is a lack or deprivation to which no response is made. In a few cases, we are only told of the presence of the monster with some implied threat, or someone else is hurt, or we are scared, or the monster is described. One thinks of paralysis in the face of fear when seeking the biological counterparts to this response.

Examples:
(a) This is a story about a jungle. Once upon a time there was a jungle. There were lots of animals, but they weren't very nice. A little girl came into the store. She was scared. Then a crocodile came in. The end. (girl, age five)
(b) The boxing world. In the middle of the morning everybody gets up, puts on boxing gloves and fights. One of the guys gets socked in the face and he starts bleeding. A duck comes along and says, "Give up." (boy, age five)

Level II. The predominant responses here are those of escaping or being rescued. The monster may be attacked but the attack is not successful. This is what the Marandas term "failed mediation." In this subject group, some children convert the monster into a benevolent creature. One may join with him in attacking others, or simply make him a nondangerous entity. On occasion, the benevolent monster has to persuade the mother (now the negative force) that he may be taken into the home quite safely. Unlike most fairy tales and folktales, there is little reference amongst this group to the interference of magic or luck, an indication perhaps of the inner rather than the outer directedness of this particular population. In most cases, those who rescue us do not succeed in getting rid of the original threat either, so that these are level II responses.

Example: Henry Tick (girl, age 10)

Chapter 1: A few years ago Henry Tick lived in a hippy's hair but he got a crew cut so Henry had to move. He went to the dog pound but it was closed. He went to the pet shop but it was closed too. Finally he found a nice basset hound. So he moved in. He got a good job at the circus jumping 2 inches in mid-air into a glass of water. One day he jumped but there was no water. He was rushed to the hospital. They put 12 stitches in his leg. Well, he never went there again. The end.

Chapter 2: One day Henry Tick was walking down the street when he was almost stepped on. He was so startled he jumped into the shoe! He was in the shoe for about 15 minutes when the person took off the shoes and put them in the closet. Henry jumped out and ran into the next room which happened to be the bathroom. He jumped into the toilet, by mistake of course. Henry almost went down the drain.

Chapter 3: Henry got out of the toilet. The first thing he did was wash. He found a damp washcloth in the sink. He wiped himself thoroughly and then dried off. He went into the next room and watched the football game.

It should be noted that in the Henry Tick story, Henry escapes his various dangers but in no way nullifies them. They still exist and may well return.

Level III. At this level, the story's central character is successful in rendering the threat powerless in some ways or in overcoming what is lacking. The enemy may withdraw. The nullification of the threat may be done by the good services of others, as in the following story of a pussy cat, who gets separated from his loved ones but is finally, after many travails, once again absorbed into a loving family.

Example: A story about a pussy cat (girl, age 9)

There was this old cat. It was wandering around the streets and had nowhere to live. It was pregnant and it has nowhere to stay to have its babies and then it ran into another cat. The other cat said, "There's a burnt-out house where you can go and have your babies." And she said. "Where?" "Down the road and turn left." Two months passed and she had her babies. She died, it was cold and her babies lived. The babies ran around looking for food. It was wintertime. All the other babies got took by someone else except one little baby. This baby was frozen. She hardly could move. She got in the warmest spot. Someone dropped something out the window and she took it and it made her warm. She got very sick. Someone took her in and made her better. She was a playful kitten. She knocked over so much stuff and they were too poor and no one to give it to so they let it go in the street. It was springtime. She was able to eat again. And she was wandering around looking for a home to stay in. Once in a while she would see another cat and play with it. And sometimes people would hold the little kitten. The kids would ask their mothers if they could keep it but their mothers would say no -- it's too hard to keep a little kitten. One day this little girl came over. She had one older sister and one baby sister. She was 10 years old. She asked her mother if she could keep it. Her mother said no. The girl's name was Lisa. Lisa was gonna be 11 in two days. Her mother did not know what to get her for her birthday. She put it in the box and cleaned it and gave it food, went to the pet store and got a cat box and wrapped it. It was Lisa's birthday. Lisa thought it was an empty cat box and was starting to cry but when she opened it she was glad and the little girl took care of it and fed it milk and food and the little kitten lived with Lisa happily ever after.

Level IV. At this level the danger is not only removed, there is a complete transformation, so that there is clearly no possibility of this threat or this lack returning again.

In the following example, the writer has a story in three chapters. The first chapter has a level II ending, the second has a level III ending, and the final chapter has a level IV ending. In the following data, stories are scored at the highest level, although with children of these ages stories are typically at one level. Preliminary study of the longitudinal data indicates that children are fairly consistent over time in the level of response, but that is a question which will be reported on in a subsequent study.

Example:

Mr. Hoot and the Married Lady (Level II)

One night Mr. Hoot was sitting in his house thinking why he never had any fun. He said to himself, "Maybe I'm too shy." So he said to himself again that he was going to go out and get into mischief. He got on his coat and put on his contact lenses and he was off. There he was strolling from bar to bar. At his fifth bar, he decided to have a drink. He pounded on the table and said two martinis on the rocks. While he was waiting for his two drinks, he took off his shoes and socks and picked his feet. Then he got his drinks and chug-a-lugged them down the hatch. After his drinks, he saw a beautiful lady in the corner of the bar. So he went over to her and said, "Can I buy you a drink?" She replied "No thank you. I'm not finished with this one." Then she said, "Anyway please sit down and we will talk."

A big guy walking out of the men's room came over to Mr. Hoot and said, "Are you fooling with my wife? How dare you," and picked Mr. Hoot up and threw him on the ground. The moral of the story is -- you can't tell a married lady from a single lady.

Mr. Hoot and the Stewardess (Level III)

Once Mr. Hoot was sitting in the bar with his friend Bobby the Baboon. They were disucssing going to Hollywood. Mr. Hoot said to Bobby, "Let's go next week." So they made all the arrangements and before they knew it they were on the airplane going to Hollywood. While they were on the airplane, Mr. Hoot saw this very attractive stewardess. So Mr. Hoot called her over and said, "Hi, what's you name?" She said, "Laura Since, what's yours?" "Harold Hoot," he said. Then he said, "How long have you been working for the airlines?" She replied, "Two years and seven months." Then they started talking about where they lived and other things like that. Then a little baboon said, "Hey would you stop it with the lady and let her do what she's supposed to be doing." Then Harold got mad and said, "Shut up, you little baboon." Then Bobby said, "Hey, are you sounding off on my kind? How dare you." "Oh, Bobby, butt out of this," Harold replied. Then the little baboon said, "Shut up, you overgrown owl." Then they really started going at it. They were throwing pillows and suitcases at each other and cursing at each other. Then Harold gave him a good sock in the face and that was the end of the adventure.

Mr. Hoot Gets Married (Level IV)

Once Harold was sitting in a restaurant at a table all by himself. Then he noticed there was a female owl sitting down by herself. Mischievously he walked over and asked her what her name was. She said, "Mary Gline." Then Harold thought for a moment and said, "Are you the girl that broke her wing when you were nine years old?" Then she said, "What's your name and how did you know about my wing?" "Well," said Harold, "I knew about your wing because your name sounded very familiar, so I thought back to my childhood and remembered a girl named Mary broke her wing, and my name is Harold Hoot. Then she said, "You were the kid they called Hoot the Toot." "Oh yeah," Harold replied. "I forgot about that." Then they started to talk about their childhood and ate dinner together.

After that night they went out to dinner, to movies and did lots of other things like that. After about a year, they told their parents they were going to get married. Their parents agreed and they had a wedding. They had the most beautiful wedding you can imagine. For their honeymoon they went to Niagara Falls. Then after that they settled down in a nice house in Poughkeepsie and had boys named Bobby and Peter. Last and not least, they lived happily ever after. (boy, age 10)

Results of the Study

When the stories were classified in terms of these four levels, as in Table 1 below, there was a discernible age trend (p .01). Older children tell the more advanced stories.

Table 1

Classification of stories by Maranda structural levels

Age	5/6 years		7/8 years		9/10 years	
Sex	M	F	M	F	M	F
Levels						
1	3	2	1	0	0	1
2	6	6	7	2	6	1
3	1	2	1	7	3	8
4	0	0	1	1	1	0

Also, it is clear that while boys and girls do not differ from each other at five and six years in their Maranda level, past the age of six the girls show a significant shift upwards but the boys do not (scoring reliability was over 90 percent). There were, in addition, other sex differences worthy of note. Boys more often told a story in which a highly powered figure overcame one of low power, whereas girls more often resolved the conflict with an alliance, in which a second power came and helped out the character of low power (p .01). Too, males more often told a tale of villainy and girls more often atale of lack, in which something was needed or missing (p .01). In a parallel study of the effects of television content on the tales that are told, Gil Botvin found practically no television content in girls' tales, whereas it appeared in most of the boys' tales.

On the surface, it would seem that these various sex differences parallel traditional expectations, including the faster development of girls in verbal competence, less interest in villainy, more in alliances, less in the male-dominated world of television. Strangely, when we scored the stories simply for the number of structural elements they contained, we found no such sex differences. Here we followed the procedure of Alan Dundes, Professor of Folklore at the University of California, Berkeley. He contends that all folktales containa nuclear dyad composed of something lacking or some threat or villainy done and then a response in which the lack is liquidated or the threat or villainy is overcome.[11] As tales increase in complexity, further dyadic subplots are substituted between the beginning lack and the final lack liquidated. Thus, in the above tale of Harold Hoot, he begins by lacking excitement and affiliation and ends by getting married and settling in Poughkeepsie, after many adventures in between.

The Dundes procedure here is to infer the major class of action occurring, whether escape, chase, capture, error, falling, threat, loss, attack, fear, being eaten, being sick, dying, injured, failure, danger, desiring something. Dundes terms these elements motifemes. Clearly, what one seeks here are the most basic terms that underlie all elements. Thus, attack may be manifested by spanking, bombing, cutting, etc., but these may be all called attack. In what follows, we have found it possible for some purposes to reduce all the elements in the same way as Dundes does, either to villainy or lack, indicating by the former some state of anticipated or actual attack (chase, attack, capture, trap, hate, eating, scaring, deceiving, etc.) and by the latter some type of deprivation (loss, hunger, impotence, sickness, wishfulness, etc.). In young children's stories, one often finds such motifemes left hanging with no appropriate response. One of the key issues for this study was, therefore, the number of such motifeme elements in a story, the number of times they are combined appropriately into dyads (attack-defend; chase-escape; threat-withdraw), which, as Dundes says, constitute even by themselves the nuclear tale. Further, there is the question of whether a series of such dyads truly constitutes a narrative. Thus, it is possible to have a story that is a series of chase-escape, chase-escape, chase-escape, which has an episode or picaresque structure, but which is certainly not a story in the accepted sense of the word. Alternatively, one can have stories, as in the final two examples above about the pussy cat or Harold Hoot, in which there is a relationship between the original state and the final outcome. Thus, the pussy cat lacks a home in the beginning, but after much travail and wandering finally gets one. Likewise, Harold Hoot begins by going out looking for excitement and companionship and finally gets married.

These latter tales have a temporally cumulative nature and, therefore, we like to think, a more truly narrative character.[12]

Following this method of analysis, it was found that the stories ranged in length from one motifeme (a boat sinks) to the 30 represented in the tale of Harold Hoot.

Obviously, in scoring the tale this way -- a series of lacks or needs that are then liquidated or not -- some inference conerning the need that lies behind the recorded behavior often has to be made. But on the surface, this certainly seems to be a useful technique for analyzing the dynamic elements of narrative, each of which is like a miniature plot in its own right. Furthermore, it distinguishes between the age levels much more clearly than the other analyses presented above. In the following table, the number of motifemes found in children's stories is broken down into those of three or less, from four to five motifemes, and from six and above.

Table 2

Number of stories within motifeme lengths

Age	5/6 years		7/8 years		9/10 years	
Sex	M	F	M	F	M	F
Motifemes						
0-3	7	10	3	4	0	1
4-5	3	0	7	4	1	1
above 6	0	0	0	2	9	8

When the sexes are joined and the ages of the children compared, it is clear that older children use significantly more motifemes (p .001). What we have with this unit analysis is clearly that the tales get more complex with increased age. By our score, however, no tales at ages five to six, in which the initial episode was returned to in the final episode and the lack thereof liquidated, were truly cumulative. We found only two such "narratives" at ages seven to eight, but found eight in ages nine to 10. What seems to occur mainly at ages five to six and seven to eight is that the dyadic units tend to get reiterated. Complexity is at first repetition. Thus, a story of four motifemes that occur frequently are, say, a chase and escape followed by a chase and an attack. Or sickness and cure followed by sickness and escape. Just one of the terms is shifted. Of 10 tales out of 60 that we classified as being in a sense cumulative and complete, with a beginning and an ending, seven were told by females and only three by boys. The most general theme for all tales, boys or girls, was of creatures separated from their loved ones, who after various peregrinations find them again or find substitutes for them. The initial theme seems usually to be one of being trapped or being separated or rejected and then finally achieveing affiliation once more at the end of the tale after wandering in between.

So we have the puzzling fact that while girls achieve higher levels of plot structure (the Maranda scoring) and tell more well structured tales (with beginning and ending), nevertheless, as table 2 indicates, they do not have any more motifemes in their tales. Their structure is superior but their length is not. What can this mean? If we look again at the Maranda scoring, we notice that the girls most often overcome conflict by gaining help from someone else to extinguish the villain or to provide the love, whereas the boys to continue to lose against hopeless odds. Tentatively, we suggest that although the length of the tales indicates that both boys and girls are proceeding at the same pace in terms of memory capacity and cognitive capacity for the "bits" of information that must be strung together to make a narrative, the culture is not providing the boys with a way of resolving their characteristic conflicts at as early an age level as it is for the girls. The cultural message to girls, as many have emphasized, is that the road to achievement is through affiliative behavior. Perhaps this is reflected in their tendency to tell stories in which the outcomes are resolved through alliance. The cultural message to boys is, more characteristically, that they must achieve through independence. And at the childish age with which we are dealing here, this must be less manageable than the technique being suggested to girls. The boys' schedule for the resolution of the culture conflict over achievement is delayed relative to the girls' because of the more difficult problems that the male solution imposes. The girls tend to deal chiefly with deprivation of love and supplies, which are matters that can be solved within the nuclear family, whereas the boys deal with problems of villainy, which have to be dealt with outside of it. Elsewhere, we have noted that even as early as three years of age, boys and girls show quite different power tactics in their manipulation of each other, tactics apparently related to the same differences in girls' orientation to power in the nuclear family and boys' to power outside of it.[13] Let it be clear that it is assumed by us that these are traditional differences between the sexes. And that while they persist, that does not mean they are not socially learned. It would be surprising ifthey were not, and surprising if they were not changeable, an argument we have presented elsewhere.[14]

Although the sex differences are interesting, they do not deny our general point that it is possible to trace structures (and perhaps stages) of increasing complexity in the tales that children tell in response to the invitation of our storytakers. Of course, these are cross-sectional results and such development is inferred from the differences between children of different ages. When our longitudinal data is analyzed, we hope to show just how this process occurs in the lives of individual children. More significantly, these results show that onone level (the motifemic) the development of both boys and girls proceeds irrevocably, but on the superordinate levels of plot structure (Maranda) and cumulative order the girls are moving along a different and faster developmental-structural path. What we would assume from this is that the cultural learning of verbal competences for the description of actions is mediated equally to boys and girls, but the cultural learning of superordinate packages for the incorporation of these actions in larger units of cultural significance is differentially imparted. These differences have a particular significance for "structural" theories of development because they show just how tightly such structural sequences are tied into cultural learning programs.

The Underbelly of Mythology

We have presented the view that there is more need for normative study of development through the arts, and that although this is difficult to do, the present study of narrative development in children is just one more indication that it is achievable. While we have spoken of only three techniques for analyzing narrative (and there are more), they all indicate that there are definite steps through which children pass in their narrative development. This means, at the very least, that a teacher with these steps in mind is in a better position to assess the occurrence of any growth that is taking place as a result of her own storytaking techniques.

There are, or course, innumerable things with which we have not dealt. Some of these can be mentioned. In an ongoing study of the relationship of dreams and stories, Marylou Caring, for example, appears to have discovered that steps forward in the stories might be presaged first by steps forward in the dreams. Dreams can be analyzed in the same plot terms that we have here applied to the stories. This would be consistent with our play theory, which contends that children first envisage in their play what they later might apply in their lives. Presumably dreams are the first such testing ground, play the next, the arts follow, and then on occasion there is a reentry from these systems of potentiation into the everyday world.[15]

What is particularly lacking in this "normative" paper is any discussion of individual differences in story style. All we can say at this time is that we are recording such differences as are found in the stories, in their metaphor, their imagery, and their character transformations, but are not yet in a position to discuss them systematically. Clearly, however, "aesthetic" development through stories, as apart from structural development, would appear to be related to such stylistic variables.

A amjor objection that a reader might make to our material is that it emphasizes conflict so heavily. Why isconflict so important? If one reads books of collected children's stories, conflict does not seem to be so important, as for example in Journeys by Richard Lewis (Simon & Schuster, 1969) or Math and Writing and Games by Herbert Kohl (Vintage, 1974). But here we would argue the hand of the teacher is in myriad ways much more omnipresent than in our case. Again, it must be remarked that we infer conflict most of the time, rather than just take obvious examples of if. If something is needed, or is missing, etc., we infer conflict. Perhaps some of the objection to this interpretation can be softened if it is realized we are not discussing traumatic conflict. We are discussing normative conflicts, which are a part of every child's living in the culture in which he or she grows up. It is normal to be concerned with power and powerlessness, to be worried about rejection and acceptance, to be concerned with success and failure. These are normative conflicts within modern society. They do not usually debilitate the cultural participant; instead they put him on his mettle and convert him into some form of functioning competence. Elsewhere we have argued that games perform the same function in culture. One gets into them because of conflict (fear of failure, hope for success), and after years of practice (enculturation) is in better shape to endure the cultural stresses that are reproduced in the games in micro-scale form.

So we suspect it is the same with stories made up by children. The stories are their first attempts to deal with powerlessness, to deal with escaping from being overwhelmed, to deal with the courage needed to overcome the enemy, and the courage required to be a hero oneself and do battle against all the terrors. As we have seen, girls and boys may take different paths in their solution of these dilemmas, but the conflicts themselves seem irrevocable. After all, though it would be better to stay safe and avoid danger, to stay safe is not to grow up: but to grow up is to face danger. Or, if one does not take a chance, one will not fail, but one cannot have the visible pleasures of maturity. These are the sorts of dilemmas with which children must deal in our society.

The language of their stories is a dramatic rendering of the conflicts. The content of the stories uses monsters and animals, etc., not as a statement of the actual beings with whom they must deal, but perhaps as a statement of the character of the feelings they have about these conflicts. The stories appear to be a feeling language rather than a realistic language. They deal with children's wishes and hopes for solution. They say, "I hope I will escape," or "I hope I will overcome the danger," etc. They are cognitive insofar as the child shows his capacity to structure these feelings in a plot relationship. But in the statement itself, one finds the child giving himself a promise as to the way his future might be, or in some cases, his lack of promise.

Furthermore, all of this is not merely a matter of personal conflict solution. Because the children's stories deal in the main with the normative conflicts that are part and parcel of socialization within this culture, they are also primitive statements of the prevailing mythologies of this culture. According to some authorities, this is where mythologies are born. They develop out of narrative. We like to think, therefore, that in collecting children's stories our storytakers are dealing with the underbelly of living mythology.

FOOTNOTES

1. Sutton-Smith, B. "A developmental psychology of play and the arts," *Perspectives on Education* (Teachers College Press), Spring, 1971, pp. 8-17.

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3. Brunner, C. "Aesthetic judgment: criteria used to evaluate representational art at different stages." Ph.D dissertation, Teachers College, Columbia University, 1974

4. Sutton-Smith, B., "The sensible and the intelligible parameters of improvisation," address to the International Association for Theatre for Children and Young People, Albany, New York, 1972.

5. As illustrated in Sutton-Smith, B., and Sutton-Smith, S., *How to Play with Your Children and When Not To* (N.Y.: Hawthorne Books, 1974) and as documented in Singer, J., *The Child's World of Make-Believe* (N.Y.: Academic Press, 1974)

6. Saltz, E., and Johnson, J., "Training for thematic-fantasy play in culturally disadvantaged children: preliminary results," (Detroit: Wayne State University, Report #3, April 1973).

7. Sutton-Smith, B., and Lazier, G., "Psychology and Drama," *Empirical Research in Theatre* 1, (1971) 38-46.

Footnotes -- cont'd.

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Paper #8. A Developmental Analysis of the Trickster from Folklore

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Paper presented at the 2nd Annual Meeting of the Association for the Anthropological Study of Play, Atlanta, Georgia, April 3, 1976.

The common plot of the trickster tale in world folklore is of a lower-order, evolutionary creature, such as a spider, frog, raven, rabbit, or fox who counters the physical aggression of more powerful figures with cunning wit and trickery. Among the Murngin of Australia, the trickster is known as Bamapama; among the Maori of New Zealand, he is called Maui-Tikitiki-Ataronga; among the Ibo of Nigeria, he is a frog or tortoise; the African Hausa have tales of Spider, versions of which can also be found in the Caribbean Annansi tales; among the Toba of Argentina, he is a fox; and in Afro-American folklore, as reported in the Uncle Remus tales collected by Joel Chandler Harris in the early part of the century, he appears as the famous Br'er Rabbit (Edmonson, 1971). The early view was that the trickster was the expression of a lower level of cultural development. The evidence for this position was 1) many cultures with rich traditions of trickster stories did not also have heroic legends, which would suggest a higher level of cultural aspiration and 2) the actions of tricksters are usually infantile, impulsive, and obscene. Boas (1898) and Lowie (1909) suggested that with the evolution of culture, mythology and folklore may have followed a pattern of a first stage, where there are only stories of unsuccessful, childlike tricksters; a second stage, where the trickster successfully defeats his opponents and inadvertently provides boons for man, so that in that sense there is a trickster and culture hero combined in the same figure; and a third stage, where there are two distinct traditions, one being of trickster tales and the other, stories of heroes who improve the world for others, as in the Viking legends of the Scandinavians or the myths of the ancient Greeks. This position has persisted in the field largely due to the continued popularity of Radin's (1956) collection of the Winnebago Indians' tale cycle of Wakdjunkago, whose many episodes include his right arm fighting with his left; telling his anus to watch over roasting ducks as he sleeps; awakening with an erection holding up his blanket and mistaking it for the chief's banner; scattering villagers by breaking wind; and wading through his own excrement.

Contemporary interpretations, however, have called attention to the cross-cultural differences. Feldmann (1963) notes that the African trickster tends to be mercenary and greedy, and Abrahams (1968) points out that the Afro-American trickster is generally much more clever and successful than the self-defeating and promiscuous trickster of the American Indians. Levi-Strauss (1963) theorizes that the trickster is created out of a desire to mediate opposites, such as life and death, God and the Devil, human culture and natural environment. The implication is that the trickster is the outcome of a more logically sophisticated level of culture, for in order to create such tales, the mythic mind must be able to understand the reversible logic of mutually exclusive classes.

This paper examines these two conflicting hypotheses regarding the origin of the trickster, but from the standpoint of child development. We begin with an investigation of children's interest in the major trickster figure in American childhood traditions, namely the *Bugs Bunny* cartoon, moving then to a comparison of the stories of children from five to eleven years of age. A predominance of trickster elements in the stories of the five-to-seven year-old children would support the notion that the trickster is characteristic of a lower level of socialization. On the other hand, if Levi-Strauss is correct that the ability to tell a trickster tale depends upon the prior development of a reversible logic, which Piaget (1966) claims the child does not begin to acquire until seven-to-nine years of age, then we would tend to find more trickster elements in the narratives of the older group of children.

56 children participated in the study, with 14 females and 14 males in the 5-7 year-old group and 14 females and 14 males in the 8-11 year-old group. Each child was asked to name his or her three favorite television programs and to make up a story.

Bugs Bunny Cartoons

Bugs Bunny was the most frequently mentioned program by the younger children. 78% of this group reported watching it as compared to only 3% of the 8-11 year-olds, which is a highly significant different by chi-square analysis ($X^2 = 27.3$, p .001). The older children were more interested in shows like The Brady Bunch, All in the Family, Star Trek, and TV movies. Bugs Bunnycartoons were randomly sampled by taperecording the morning Bugs Bunny program in New York City every third weekday for a two-month period. 31 cartoons were recorded, which were then analyzed according to the scheme of Maranda and Maranda (1970). Scoring the outcome for the central character, which is defined as the character most frequently mentioned, the Marandas assign a plot to one of four levels: No response to conflict or threat (level 1); the protagonist attempts to mediate the conflict, but fails (level 2); the protagonist successfully nullifies the threat (level 3); and the initial situation is permanently transformed with a resulting personal gain or status elevation (level 4). Narratives without any clear expression of a conflict are scored level 0.

In 9 out of the total 31 plots, Bugs is egotistical and manipulative, and ends up being exposed to public disgrace. In "Winner by a Hare," Bugs is racing a turtle, who slowly cruises along. Bugs teases him, tries to scare him, and puts a rocket on his back, trying in vain to get the turtle to win the race, since he had bet on him. But the turtle puts the rocket on Bug's back, so Bugs wins, and the turtle rushes in to collect his winnings, as he had bet on him to win. In "Bugs Bunny and Friends," he lectures his nephew Clyde on the central role of rabbits in American history in order to help Clyde with a forthcoming test in school. Clyde fails the test due to this misinformation. "Rhapsody Rabbit" has him giving a piano recital in a large concert hall. A little mouse pops out of the piano, Bugs chases him around, but the mouse finally finishes the piece Bugs was playing. These tales would be classified as Maranda Level 2, since Bugs's trickery and braggadocio ultimately backfire.

In the more prevalent type of tale (22 of the total 31), Bugs successfully defeats the villain usually by humiliating him. In "Stage Door Cartoon," Elmer Fud chases Bugs with a rifle, but Bugs tricks him and runs away. It ends with Fud on stage before an audience with his pants down. In "Bugs Versus the Crusher," he challenges a huge wrestler, who simply throws him around. After repeatedly falling on his face, he decides to put on a disguise, tricks the Crusher into walking into a metal door, and finally sends him up in the air by exploding a bomb that was meant for himself. These tales would be classified as Maranda level 3, since the villains are temporarily put out of commission rather than permanently vanquished.

A content analysis of the cartoons showed that the high frequency elements tended to be found in the predominant Maranda level 3 cartoon: Trickery (1.00), humor (.97), violating taboo (.93), pretense (.93), reverse behavior (.93), superpowers (.90), individualism (.90), bodily changes (.90), oral behavior (.90), clumsiness (.87), impulsivity (.83), fearless daring (.83), humiliation of the villain (.71), and good deads (.69).

Children's Stories

1) The stories of the 56 children followed a pattern of all four Maranda levels, corroborating the findings of Sutton-Smith et. al. (1975) that these levels represent the stages in the child's development of the hero tale: 4-5 year-olds' stories have the protagonist overwhelmed with fear before a threatening monster; 6-7 year-olds have the protagonist try to run away or throw something at the monster; 8-9 year-old stories confront the monster and temporarily nullify it by kicking it out the window or by some other action; and 10-11 year-olds' protagonists permanently overcome the threat and end up stronger than at the beginning of the story. Contrasting the two lower levels with the two higher ones shows a significant age difference ($X^2 = 4.6$, p .05). This suggests that 5-7 year-olds, for whom *Bugs Bunny* is the most popular television show, tell stories that are predominantly of levels 1 and 2, while the majority of the cartoons are a level 3 Maranda type tale.

2) The content analysis of the stories supports this. Comparing the order of frequencies of trickster elements in the cartoons (see above) with the frequency order for a similar scoring of the younger children's stories results in a correlation coefficient of only .12, which is nonsignificant by the Spearman rank order correlation test (Runyon and Haber, 1971). But the rank order correlation between the cartoons and the older children's stories yields a coefficient of .91, which is significant beyond the .01 level. In other words, the high frequency trickster elements in the cartoons tend to be found in the older children's narratives much more so than in those of the younger children.

3) The rank order correlation between the stories of the two age groups is not significant, although single variable chi-square tests show highly significant differences for some of the elements considered separately. The younger group's stories have more oral behavior, narcissism, and clumsiness, with the greater frequency of clumsiness found to be highly significant ($X^2 = 35.7$, p .001). The narratives of the older group, on the other hand, have more of the elements of pretense ($X^2 = 38.4$, p .001), trickery ($X^2 = 30.2$, p .001), and violating taboo ($X^2 = 28.8$, p .001).

Stages of the Trickster Tale

Combining the results of the Maranda scoring and the content analysis enabled us to identify four stages in the child's development of the trickster tale, which roughly parallel the first three Maranda levels. At five years of age, there is a Maranda level 1 tale type that could be called the *stage of physical clumsiness*. Here is a story by a 5 year-old girl:

> One day there was a big Rollarman and then, "I hate animals, because they're too sweet!" And then -- there are a lot of jokes coming up here. And I'm going to do a Rollarman. And then I throw myself in the garbage and then he fell in the garbage. And then he took off. And then I bumped myself for

> real, too. And then I killed myself for good -- bang, bang. And then you said, "I hate kitties. They stink!" And then my ear flew open into the far away sky. The end.

The many instances of physical clumsiness are climaxed by the dramatic image of the disembodied ear in the last line, which seems to accentuate the feeling of little physical self-control.

The 6-7 year-olds relate a slightly more advanced slapstick clown story, which we call the *stage of moronic self-defeat*. There is still much clumsiness, but the protagonist now attempts to do something about his situation. But everything he tries fails. A 6-year-old boy told this:

> Once there was a man and he went swimming. But when he came out of the pool to go home -- he always made a fire when he got home -- he made a fire. But the match kept going out, because his bathing suit dripped. Now he's really mad at himself for dripping on the match, and so he didn't like that. So he started to undress himself and do it the right way. But after he did it the right way, he forgot how to dive, and so he learned how to dive. And then he forgot how to undress himself. And then he learned how to undress himself and forgot how to dive. And then he remembered how to dive, but forgot how to undress himself again. And on and on.....The end.

Concern over intellectual failure is here added to the physical clumsiness of the first stage. The protagonist tries to do things, but fails and forgets what he has just learned. The trickster stories at these first two stages appear to deal with the young child's concerns over physical and intellectual self-management that may well be intensified at the beginning years of elementary school.

At around 7-8 years, there emerges a *stage of the unsuccessful trickster*, where the use of trickery by the protagonist makes its appearance. There is still ultimate failure, however, as we see in this story by a 7 year-old boy:

> There was a dog named Smokie, and he teared up the house. And do you know what he sounded like when he was chained up -- roo, roo, roo, roo. And then he said in a very squeaky voice, "I want a cigarette!" Nope, my mom says no. My brother says, "Give him the peace pipe." Then he broke out of his chain and he went to the cigarette box and he took all the money and bought cigarettes. And he took all the cigarettes and put 'em in his hair and his hair used to pop out every time he would have a cigarette.
>
> And he went to India to get a peace pipe. He met the Indian Chief, who said, "How!" And Smokie said, "Ruff! Me want to smoke peace pipe." But the Indian Chief said, "You can't smoke the peace pipe unless you make peace." And Smoke was upset. He barked, "Roo, roo, roo, ruff!" And then he jumped on the Indian Chief and made peace with him. He took him into the teepee and locked him up. He said, "Me smoke 'em peace pipe now." So he took this peace pipe and put it in his hair and his hair popped out. And he said, "How many times does my hair have to pop out?" And this peace pipe got fire in his hair

> and he went, "Roo, roo, roo, roo." And then he said, "That peace pipe is not so peace, when you have it in your hair!" The end.

In this story, there is a great deal of violating taboo -- tearing up the house, taking cigarettes and money, fighting with the Chief -- and this behavior seems to be punished in the end with his hair popping out.

The stage of successful trickery seems to occur between 9-11 years of age, but may occur earlier, as in this story by an 8-year-old boy:

> Once upon a time there were two babies. They loved, they hated spinach. So once their mother game them a big pot of spinach, each with one fried egg on it. And they hated it so much, they threw it at their mother. She gave them another pot of spinach with two eggs on it this time and they were even madder and they threw it at their father this time. Then their mother gave them two pots of spinach with six eggs on it. They threw it at their sister. Then, when Nixon heard of this, he called them "The Fried Egg Family." But baby was angry at Nixon. So when Nixon came to their house, they did nothing to him. But as he was walking out the door, the baby saw him and then they stuck out their weenies and they they put their weenies to work. And when Nixon saw these things, he flipped. But then, they pulled in their weeners and put two buns on top of them and put some catsup and spinach and then Nixon got right back up and he started to bite. All of a sudden, the babies went pissing and shot their X-Y-Z. And Nixon was so upset he almost, his heart almost cracked. But then they had more strategy.
>
> So when he was walking over the mountain, they made flying hamburgers and then Nixon screamed, "We're being invaded by flying hamburgers!" And then the babies made flying hamburgers shoot out missile hotdogs. And then Nixon had a very good idea! And he ate it -- the hotdogs. But Nixon was so dumb, those hotdogs were solid metal and when he bit on them, they cracked his teeth and he was so upset. And then a lady came and said, "Will you help me cross the street?" And Nixon said, "Whaaaaaah?" "You are wierd, man," the lady said. And then the babies had little bit more strategy. They started shooting spinach with fried eggs on top. And then New York called Nixon "The Fried Egg President". That's all.

In this story told during the Watergate scandal, the babies humiliate the villain Nixon with their tricks and make him the fool -- the fried egg president. The clowning babies, therefore, effect a power reversal in the best tradition of the Maranda level 3 *Bugs Bunny* tales. The mocking of authority figures may be a way for the child to assert his independence from parental control.

Rather than finding a level 4 trickster tale, where the power reversal between protagonist and villain would have to be permanent, the oldest children in our sample seemed to tell a more peer-oriented trickster-like tale that was still a Maranda level 3, as in this story by a 10-year-old boy:

> Once upon a time there was a boy named Jimmy. Jimmy had a sister named Heidi. Jimmy and Heidi were in love. They slept in the same bed together. They had a lot of babies. But Jimmy didn't like Heidi, so he found a new girlfriend. His girlfriend's name was Dorothy. Dorothy was just right. Jimmy and Dorothy were madly in love with each other. So they finally got married. They had 10,000 babies. Jimmy was not satisfied, so they had 10,000 more. Well Dorothy wasn't right, so he gave up Dorothy. Jimmy married a new girl named Jessica. Well Jimmy knew Jessica wasn't right, so he gave her up and met a new girl. The new girl was named Julie. Julie and Jimmy were so happy together so they got married and had 10 million babies. But that wasn't enough for Jimmy, so they had 10 million more.
>
> ...My name is Jimmy. Let me explain how you have babies. You lie in bed with all your clothes off with another person of the opposite sex. You come close to each other and, whoops, my mother's coming, we have to continue the story.
>
> Anyway, to get back to the story, Jimmy and Julie were madly in love. This reminded Jimmy of his school days when he and another girl were kissing in the bathroom, the boys' bathroom, of course, and while they were kissing, their braces got caught together. While their lips were touching each other, the principal walked in. Jimmy didn't mind, but he got out of the braces mess and started kissing the principal, who was female. That girl got so made at Jimmy that she slapped him on the ponderosa (the rear end) and walked out. Well back to the story. Jimmy and Julie were having a good time together, a real good time, and they both lived happily ever after. The end. P.S. Very happily ever after.

This would be a successful trickster tale, for the elements of clumsiness (the braces sticking together), violation of taboo (incest between siblings, repeated sexual intercourse, kissing principals), superpowers (the million-plus procreations), and individualism (the picaresque wandering from female to female) combine with a succesful ending for the hero. Storytelling has become more of a group experience, as in the above story, where the storyteller addresses the surrounding audience and weaves the names of his classmates into the narrative in a ribald, titillating manner, and the content seems to have shifted towards using the trickster genre to explore forbidden sexual interests in one's peers.

Contrasting the two lower trickster stages with the two higher ones shows a significant age difference (χ^2 = 6.63, p .02). No sex differences were found.

The Trickster as Socialization

Given the ubiquitous presence of trickster figures in world folklore, the stages in the child's ability to generate such characters in his own storytelling that we have identified suggests that the child is acquiring competence in a part of human culture. Moreover, it would appear that this socialization process is related to the important changes in social and cognitive development that are also taking place at this time. The period from 5-7 years is the time when the child begins to shift from dependency upon parental authority to increasingly autonomous interaction with peers (Fromm, 1941) and from the egocentric, magical thinking of pre-operations to the reversible logic of the stage of concrete operations (Piaget, 1966). The trickster represents the extreme of this development of psychosocial independence, for he not only lives and acts alone, he baldly mocks authority figures and breaks all societal rules, which forces him to remain autonomous. His repertoire of tricks characteristically employ the logical operations of reversibility, class inclusion, and seriation, which are the main operations acquired in middle childhood (Inhelder and Piaget, 1964). In an African Kru tale, the trickster uses the reversible logic of countering a king's command to weave a mat of rice grains by asking for an old mat of the same kind to use as a pattern, thus escaping the king's impossible command by posing an equally impossible condition (Feldmann, 1963). The Ibo of Nigeria have a tale where a frog wins a race with a deer by posting his relatives at regular intervals along the racecourse so that the deer things the frog is always ahead (Basden, 1921). This strategy is based on the operation of classification, for it turns on the logical confusion of a member with its class. Spider in a Hausa tale uses the logic of an ordered series in the trick of taking a loan from a series of animals who habitually prey on each other and arranging his payment so that each animal that comes to collect is devoured by a stronger creditor (Tremearne, 1917).

The young child's fascination with watching Bugs Bunny, then, may be due to its ability to help socialize the 5-7 year-old child to his next stage of social and cognitive development. Our results showed that the predominant plot level and the high frequency elements in Bugs Bunny cartoons are a stage ahead of the young child's own narratives. It is not until late in middle childhood (ages 8-11 years) that the child is able to create characters with the ribald independence and logical cleverness of folk tricksters. The appearance of characters that mock authority figures and that employ logical trickery is no doubt related to the child's development of social independence and reversible operations at this stage of development.

The Trickster as Symbolic Inversion

One might certainly question whether the regressive, obscene, and deceitful elements in trickster tales have any socialization value. Victor Turner's (1968) answer to this is his notion that symbolic inversions of social values help the community from disintegrating in reality. Telling tales of tricksters who violate the taboos of society allows individuals to misbehave in the realm of the imagination so that they need not misbehave in reality. But it also has a regenerative effect, for in mocking the social order, making fools into kings and kings into fools, it restores everyone to the level of their common humanity (Turner, 1969). For the child, however, perhaps the best suggestion regarding the socialization value of such reality reversals comes from Chukovsky's (1925) study of the word play of 2-5 years-olds, written over fifty years ago. He noticed that when little children are learning the idea of logical proportion, they may joke about "the cow that sat on a birch tree and nibbled on a pea." Or they may recite such rhymes as:

> Sam, Sam, the Soft Soap Man,
> Washed his face in a frying pan,
> Combed his hair with a wagon wheel
> And died with a toothache in his heel.
> (Withers, 1970, pg. 39)

Submitting one's conceptions of reality to wild distortions, Chukovsky argued, is one way that the child clarifies the conceptions to himself. Through his nonsense, the child acquires a stronger mastery of the sense from which it derives. By creating trickster figures that possess social independence and logical strategies in exaggerated proportions, then, may be said to be one way that the older child acquires these developmental skills, while the exaggerated clumsiness and moronic self-defeat in the younger child's trickster stories may be a way that he frees himself from such maladaptive behavior.

Adaptive Potentiation

The greater danger of interpreting these chronological developments in trickster storytelling and cartoon watching as exclusively due to socialization, however, is that such an interpretation might be more due to our desire to justify the phenomena than to give a complete account. Like other forms of play, the real value of creating trickster stories may be that they allow the child to engage in a voluntary activity for its own sake. Reality can be turned upside down and social rules broken with such freedom, perhaps because there may be no explicit adaptive intent. Nonsense can simply be nonsense. The creative license that play provides gives the individual the opportunity to explore alternative forms of behavior that are difficult to explore in the rest of one's social existence. Hence, play engaged in for the sake of play helps the individual become more flexible and creative. This theory of play has been formulated by Sutton-Smith (1975), where play is seen as *adaptive potentiation*. In his view, nonsense is not merely the anti-structure of sense, as Turner (1974) suggests, it is also protostructure for potential futures (Sutton-Smith, 1972). The implication is that creating trickster tales and being exposed to them in *Bugs Bunny* cartoons allow children opportunities to explore a variety of behavior patterns, some of which may have creative, adaptive value, and some of which may simply be ridiculous.

Conclusion

In sum, our results shed some light on the question of the origin of the trickster tale that has intrigued anthropologists for several generations. From the standpoint of child development, the major shift in trickster narrative is from the clumsy, slapstick clown figures of 5-7 year-olds to the more successful and logically clever tricksters of 8-11 year-olds. This, therefore, lends some support to the views of Boas (1898) and Lowie (1909) that regressive trickster tales precede more successful ones in the evolution of human culture, and it also lends some support to the position of Levi-Strauss (1963) that the ability to create trickster tales depends upon the development of a reversible logic. Our developmental analysis suggests that the differences noted anthropologically may be due to differences in the level of complexity with which the trickster is presented in different cultures.

Trickster tales appear to have the function of helping to socialize the young child to his next stage of social and cognitive development, helping him acquire the personal autonomy and logical operations so critical to middle childhood. But in addition, the nonsense and trickery of these tales also tends to heighten the child's flexibility about social roles. The trickster tale enables the storyteller to violate taboo in the innocent guise of humor, thus widening the latitude for the exploration of alternative forms of behavior. As a guide to this freedom of self-expression, the trickster more than any other character seems to embody the true spirit of creative playfulness.

Paper #9. Developmental Structures in Fantasy Narratives

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The present paper is part of a larger study of the development of children's imagination during the elementary school years. The question posed was whether children could be said during these years to be initiated into public legend and public myth. Evidence for such a possibility might lie in the susceptibility of their fantasy life to analysis in terms of some of the major conceptual paradigms that have been used in the study of folk tale and myth. Kirk in his analysis of mythology has suggested that the only truly universal aspect of mythology is the narrative habit (1970). The present study, therefore was conducted on children's freely told stories which were collected over a two year period from five to ten year-old children. The description of the collection of stories and the methods used is described elsewhere (Sutton-Smith, et. al., 1975). Confidence that the acquisition of narrative competence is a learning of increasingly structured performances is enhanced by Applebee's re-analysis of the Pitcher and Prelinger story data, showing a steady increase over that age range in children's use of conventional markers (once upon a time, the use of the past tense, fantasy characters, animals, the non-use of the self, they lived happily ever after, etc.) (1973). Applebee also found that while children of five years old conceded that the stories were not true, it was nine years of age before they conceded that the characters were not true.

What this implies is that storytelling is not a purely idiosyncratic expression. Learning to tell stories is like learning to play games. And as the evidence of the latter shows their clear implication with cultural norms, we, therefore, have reason to suppose the same will be true of stories (Sutton-Smith, 1972). This is a break with the earlier epiphenomenal or "projective" tradition and is consistent with the recent works of Singer (1966) and Klinger (1971) on the structured and problem-solving character of fantasy. Further we hold that fantasy, like play, is a form of adaptive potentiation in which the subject in combinatorial activity deals with the possibilities permutatively inherent in prior experience (Sutton-Smith, 1975). In this way a novel repertoire of associations is created, some of which have the potential for entering into future adaptation.

The promise of a structural approach to fantasy is that, among other advantages, it provides a basis for clarifying the nomothetic and idiographic elements in any particular fantasy, and therefore, improves the possibility of valid interpretation in the individual case. The dangers of structuralism are, as usual, the dangers of considering text without context. And while those dangers are real enough because no text has yet been formulated for this arena, such dangers lie in the future, even though they are currently rife elsewhere (Kessing, 1974).

Structure, in the present case of childrens' stories, can mean a number of things. It can mean plot, it can mean style, it can mean grammar, it can mean symbolism, it can mean level of tension (Colby, 1975). Although we have initiated analyses in all these terms, the present paper is limited to our major focus to date, which is upon the study of plot as structure.

From the beginning we have assumed that there would be a number of possible concepts of plot structure available to us, and that the most fruitful approach to the understanding of the development of regularities in narrative structure would be to contrast some of the available alternatives. The wisdom of this eclecticism was forced upon us by the reigning battles within folklore, where various investigators have striven to show that their own system provides the ultimate analysis of narrative structure applicable to folktales and the like.

The two major contestants for the analysis of plot structure currently focus, in the once case, on the characters of the stories and in the other on the actions of those characters. No one as yet seems to have given equal importance, as Kenneth Burke might expect, to ecological elements, or temporal elements, or instrumentalities although none of these is actually missing at least in some minimal form in the prevailing systems.

I. Narrative Plot as Character Interactions

We have two possibilities to consider. One from Levi-Strauss, and a derivation of Strauss presented by the Marandas.

(a) Levi-Strauss: While Strauss probably has a myriad of suggestions for this type of analysis, we have focused on one from his structural study of myth where he says:

> "If we keep in mind that mythical thought always works from the awareness of oppositions towards their progressive mediation....We need only assume that two opposite terms with no intermediary always tend to be replaced by two equivalent terms which allow a third one as mediator; then one of the polar terms and the mediator becomes replaced by a new triad and so on." (1963, p. 62).

In these terms we may analyse children's stories in terms of the conflicts between the powers that are represented in them, with the expectation that these conflicts will ahcieve successful mediation through different characters. An example of a story where one seems to get these sorts of cyclical displacements is this one by a seven year-old girl:

> Once this girl went to the zoo. She went to the tigers cage. He ate her up. Her mother and father came and tried to get her out of the tiger. The tiger ate up her mother and father. The tiger ate up the world. Inside the tiger there was another zoo. A little girl came upto the tigers cage. The end.

In an analysis of the stories of 60 children with 20 at each level, 5-7 years, 6-8 years and 9-10 years, equally divided by sex, we found only about 50% in which once the conflict was established other characters entered into the picture and contributed to its further development. There was a significant tendency for girls more often to use this technique for story solution, which meant that in the main they relied on an alliance with a powerful character (mother, father, etc.) to overcome the dangers of the threatening character (monster, witch, etc.). This is an important finding because it immediately suggests that this structural solution is relative to sex role. It cannot apparently be the sort of structural solution that would be implied in a Piagetian approach.

(b) The Marandas: The Marandas have generated a more explicit account of the way in which interaction between characters might be used as a structural way of looking at a narrative (1971). They consider that the conflicts in tales can be analysed into four levels. These levels are I. Tales in which one power overwhelms another and there is no attempt at response; II. Tales in which the minor power attempts a response but fails; III. Tales in which the minor power nullifies the original threat; IV. Tales in which not only the threat is nullified, but the original circumstances are substantially transformed. Tales of the last sort are like hero tales in which having destroyed the monster the Prince returns, marries the Princess and takes over the Kingdom. These steps of the Marandas may be regarded as stages in the development of the hero tale. Examples of the stories at each level are as follows:

Level I. The most common response at this level is that the subject is threatened or overcome by a monster or there is a lack of deprivation to which no response is made. In a few cases, we are only told of the presence of the monster with some implied threat, or someone else is hurt, or we are scared or the monster is described. One thinks of paralysis in the face of fear when seeking the biological counterparts to this response.

> Examples:
> (a) This is a story about a jungle. Once upon a time there was a jungle. There were lots of animals, but they weren't very nice. A little girl came into the store. She was scared. Then a crocodile came in. The end. (girl, age five)
>
> (b) The boxing world. In the middle of the morning everybody gets up, puts on boxing gloves and fights. One of the guys gets socked in the face and he starts bleeding. A duck comes along and says, "Give up." (boy, age five)

Level II. The predominant responses here are those of escaping or being rescued. The monster may be attacked but the attack is not successful. This is what the Marandas term "failed mediation." In this subject group, some children convert the monster into a benevolent creature. One may join with him in attacking others, or simply make him a non-dangerous entity. On occasion, the benevolent monster has to persuade the mother (now the negative force) that he may be taken into the home quite safely. Unlike most fairy tales and folktales, there is little reference amongst this group to the interference of magic or luck, an indication perhaps of the inner father than the outer directedness of this particular population. In most cases, those who rescue us do not succeed in getting rid of the original threat either, so that these are level II responses.

> Example: Henry Tick (girl, age 10)
> Chapter I: A few years ago Henry Tick lived in a hippy's hair but he got a crew cut so Henry had to move. He went to the dog pound but it was closed. He went to the pet shop but it was closed too. Finally he found a nice basset hound. So he moved in, He got a good job at the circus jumping 2 inches in mid-air into a glass of water. One day he jumped but there was no water. He was rushed to the hospital. They put 12 stitches in his leg. Well, he never went there again. The end.
>
> Chapter 2: One day Henry Tick was walking down the street when he was almost stepped on. He was so startled he jumped

> in the shoe! He was in the shoe for about 15 minutes when the person took off the shoes and put them in the closet. Henry jumped out and ran into the next room which happened to be the bathroom. He jumped into the toilet, by mistake of course. Henry almost went down the drain.
>
> Chapter 3: Henry got out of the toilet. The first thing he did was wash. He found a damp washcloth in the sink. He wiped himself thoroughly and then dried off. He went into the next room and watched the football game.

It should be noted that in the Henry Tick story, Henry escapes his various dangers, but in no way nullifies them. They still exist and may well return.

Level III. At this level, the story's central character is successful in rendering the threat powerless in some ways or in overcoming what is lacking. The enemy may withdraw. The nullification of the threat may be done by the good services of others as in the following story of a pussy cat, who gets separated from his loved ones but is finally, after many travails, once again absorbed into a loving family.

Example: A story about a pussy cat (girl, age 9)

> There was this old cat. It was wandering around the streets and had nowhere to live. It was pregnant and it has nowhere to stay to have its babies and then it ran into another cat. The other cat said, "There's a burnt-out house where you can go and have your babies." And she said, "Where?" "Down the road and turn left." Two months passed and she had her babies. She died, it was wintertime, All the other babies got took by someone else except one little baby. This baby was frozen. She hardly could move. She got in the warmest spot. Someone dropped something out the window and she took it and it made her warm. She got very sick. Someone took her in and made her better. She was a playful kitten. She knocked over so much stuff and they were too poor and no one to give it to so they let it go in the street. It was springtime. She was able to eat again. And she was wandering around looking for a home to stay in. Once in a while she would see another cat and play with it. And sometimes people would hold the little kitten. The kids would ask their mothers if they could keep it but their mothers would say no -- it's too hard to keep a little kitten. One day this little girl came over. She had one older sister and one baby sister. She was 10 years old. She asked her mother if she could keep it. Her mother said no. The girl's name was Lisa. Lisa was gonna be 11 in two days. Her mother did not know what to get her for her birthday. She put it in the box and cleaned it and gave it food, went to the pet store and got a cat box and wrapped it. It was Lisa's birthday. Lisa thought it was an empty cat box and was starting to cry but when she opened it she was glad and the little girl took care of it and fed it milk and food and the little kitten lived with Lisa happily ever after.

Level IV. At this level the danger is not only removed, there is a complete transformation, so that there is clearly no possibility of this threat or this lack of returning again.

In the following example, the writer has a story in three chapters. The first chapter has a level II ending, the second chapter has a level III ending, and the final chapter has a level IV ending. In the following data, stories are scored at the highest level, although with children of these ages stories are typically at one level. Preliminary study of the longitudinal data indicates that children are fairly consistent over time in the level of response, but that is a question which will be reported on in a subsequent study.

Example:
Mr. Hoot and the Married lady (Level II)
One night Mr. Hoot was sitting in his house thinking why he never had any fun. He said to himself, "Maybe I'm too shy." So he said to himself again that he was going to go out and get into mischief. He got on his coat and put on his contact lenses and he was off. There he was strolling from bar to bar. At his fifth bar, he decided to have a drink. He pounded on the table and said two martinis on the rocks. While he was waiting for his two drinks and chug-a-lugged them down the hatch. After his drinks, he saw a beautiful lady in the corner of the bar. So he went over to her and said, "Can I buy a drink?" She replied "No thank you. I'm not finished with this one." Then she said, "Anyway please sit down and we will talk."

A big guy walking out the men's room came over to Mr. Hoot and said, "Are you fooling with my wife? How dare you," and picked Mr. Hoot up and threw him on the ground. The moral of the story is -- you can't tell a married lady from a single lady.

Mr. Hoot and the Stewardess (Level III)
Once Mr. Hoot was sitting in the bar with his friend Bobby the Baboon. They were discussing going to Hollywood. Mr. Hoot said to Bobby, "Let's go next week." So they made all the arrangements and before they knew it they were on the airplane going to Hollywood. While they were on the airplane, Mr. Hoot saw this very attractive stewardess. So Mr. Hoot called her over and said, "Hi, what's your name?" She said, "Laura Since, what's yours?" "Harold Hoot," he said. Then he said, "How long have you been working for the airlines?" She replied, "Two years and seven months." Then they started talking about where they lived and other things like that. Then a little baboon said, "Hey would you stop it with the lady and let her do what she's supposed to be doing." Then Harold got mad and said, "Shut up, you little baboon." Then Bobby said, 'Hey, are you sounding off on my kind? How dare you." "Oh, Bobby, butt out of this," Harold replied. Then the little baboon said, "Shut up, you overgrown owl." Then they really started going at it. They were throwing pillows and suitcases at each other and cursing at each other. Then Harold gave him a good sock in the face and that was the end of the adventure.

> Mr. Hoot Gets Married (Level IV)
> Once Harold was sitting in a restaurant at a table all by himself. Then he noticed there was a female owl sitting down by herself. Mishcievously he walked over and asked her what her name was. She said, "Mary Gline." Then Harold thought for a moment and said, "Are you the girl that broke her wing when you were nine years old?" Then she said, "What's your name and how did you know about my wing?" "Well," said Harold, "I knew about your wing because your name sounded very familiar, so I thought back to my childhood and remembered a girl named Mary broke her wing, and and my name is Harold Hoot." Then she said, "You were the kid they called Hoot the Tott." "Oh yeah," Harold replied. "I forgot about that." Then they started to talk about their childhood and ate dinner together.
>
> After that night they went out to dinner, to movies and did lots of other things like that. After about a year, they told their parents they were going to get married. Their parents agreed and they had a wedding. They had the most beautiful wedding you can imagine. For their honeymoon they went to Niagara Falls. Then after that they settled down in a nice house in Poughkeepsie and had boys named Bobby and Peter. Last and not least, they lived happily ever after.
> (boy, age 10)

When the stories were classified in these terms there was indeed a significant age trend. Older children in this sampel tend to tell the higher level stories (p .01). We have now made the same analysis several times and such a chronological age shift is always forthcoming. This time there is no sex difference across the four levels. There is a difference in style of solution but not in level. That is, the boys more often reach level 3 or 4 by having their hero overcome the villain, the girls more often reach that level through an alliance. This is certainly an improvement on the prior structural approach where the sex difference effectively vitiated the system. It seems to suggest that we may indeed have an invariant series. On the other hand from the cross-cultural evidence presented by the Marandas, it is also clear that there are many societies where no such belief in one's ability to overcome the fates exist, and in these cultures the stories often do not rise above the first or second levels. Again we find that some of our younger children, even five-year-olds, occasionally tell the fourth level stories, and so we wonder whether or not this particular series of steps might not be functionally related to need achievement or an inner locus of control etc., and therefore, tell us only about structural sequences in that particular cultural context. We are investigating these questions. Fortunately the longitudinal nature of our basic sampel makes this possible. Although preliminary attempts to relate Maranda level to locus of control as measured by the PPNSIE of Nowicki and Duke have not been successful.

II. Narrative Plot as Action Sequences

The other major current source of notions about plot structure is the Russian Vladimir Propp, a formalist of the 1920's. In his Morphology of the Folktale (1928) he sought to set out the fundamental elements of action that constitute its basic components. He suggested that the number of these is limited and that they always appear in the same order.

There are two levels of action that occur in stories according to Propp, primary and secondary. At the primary level there are two basic types. These are villainy versus villainy nullified, and lack versus lack liquidated. These are the two elements which were to delineate the boundaries of all the folktales with which he dealt. They might be thought of as basic systems of disequilibrium and equilibrium restored. Other primary elements include material that is preparatory, intermediate or consequential to the establishment of these major boundaries. In the study of 60 children we mentioned above we found a sex difference with the basic type more often being villainy for boys and lack liquidated for girls.

The secondary functions are the somewhat more concretistic ways in which tjese primary functions are mediated. Thus villainy can be mediated by threat, attack, chase, violence, torture, etc. It can be nullified by defense, escape, release, and defeat. When we scored the number of these occurring at each age level across our basic sample of 60 we found an average length of about 3 such elements for the 5-6 year olds, 4 elements for the 7 or 8 year olds and above 6 for 9 and 10 year olds (.001). There were no sex differences in these units of length. What tended to occur at 5 and 6 was that the dyadic units of attack and defense, or chase and escape tended simply to get repeated, implying perhaps a primitive reversibility. It may be that chase and escape, attack and defense, are culturally occurring reciprocal systems which the child first models and which become for him prototypes of true reversibility. We know that they occur in games at about the same time they enter into narrative, and the evidence from games is that they are at first simply mimicked without any cognitive control of the reversibility involved. The finding that tales at first lengthen by repetition is similar to Garvey's finding with the turn taking rounds of early childhood (1974). The next step is a stringing together of these secondary dyads, thus trap-escape, attack-escape, or scared-successful must go together, or loses-finds, flooded-swims, loses-finds, loses-finds, to quote some actual examples.

In another study done with a different sample of 60 stories we have developed a seven step structural system based on a combination of Propp's primary and secondary characteristics. In brief the steps plotted out and tested were:

1. a fragmentary level
2. The appearance of the primary dyads of villainy and lack, just one in each story, with several other secondary elements.
3. The increasingly systematic arrangement of the secondary elements in and intermediate position between the primary dyads.
4. Increasing the number of primary dyads.
5. Expanding each of these dyads with appropriate secondary elements.
6. The development of embedded primary subplots within the major dyad.
7. Multiple subplots

An analysis of variance (for fixed effects) yielded a significant age shift across these categories. However, this effect for this age group 5 to 10 years was produced mainly by a shift up from level three at age 5-6 to level four at age 7-8 to level five at age 9-10. Which means at 5-6 years we have in this sample a basic dyad with intermediate secondary functions. By 7-8 years we have an expansion of these multiple dyads by intervening elements.

What is interesting in this system is that there seem to be only two qualitatively novel steps. When the dyad first appears at level 2 as a way of organizing the story this is a major step forward. All subsequent steps until level 6, which has subplots, seem more to be extensions and enlargements using these basic principles. One might argue that the structural system has two components, an addition of new principles and an increase in the carrying capacity of those principles.

This is an important point because Applebee in his analysis of the complexity of the Pitcher and Prelinger tales found that simple measures of complexity (such as number of words, characters, incidents, etc.) did not covary with his structural measure of complexity which was based on Vygotsky's analysis of the development of concepts (from heaps, through complexes to chains) (1973). With age held constant each form of complexity analysis moved along a separate path. Similarly in our own analysis of number of elements above we did not find any sex differences. However, when the sixth level of analysis (where the dyad includes subplots)was applied, a strong sex difference in favor of the girls was found.

What this appears to mean is that while boys and girls did not differ cognitively in terms of the number of elements they can store in telling astory; when it comes to organizing the story the girls are at a higher level. It may be easier for them to manage the primary element of lack and lack liquidated than it is for the boys to manage villainy and villainy nullified. The culture may provide the girls with their paradigm for solution at an earlier age than it provides them for boys. The boys may have to await pre-adolescence to gain a feeling of skill in overlooking villains. This must be a quite tentative proposal, however, for in a subsequent analysis of sex difference dissimilar even though significant results were obtained. The general point we would like to make is that, the discovery of developmental differences without sex differences may perhaps be taken to imply a true developmental change, whereas the appearance of sex differences can be used as an example of cultural sex role typing affecting the character of the structures being considered.

III. A Piagetian Analysis

As an alternative to focusing on either character or on actions per se, in our most recent work we have adopted notions from Piagetian cognitive theory and looked for manifestation of conservation and reversibility whether in character or actions.

In this study the story collection was extended down to two-year-olds, because we had found the Pitcher and Prelinger materials appeared to have too much adult filtering in them. The levels of development formulated on all the story data from 2 to 10 year olds was as follows:

Stage I: No Central Character (under 2 years)

The earliest tales of children are fragmentary and without central themes nor sequential organization. Characters and actions are not systematically related. There are setences, but they do not seem to us to be connected. Of course in the child they might be. However, no story is conveyed and so leave it at that.

Stage IIa: Central Character (2 years)

Now there is the same character from the beginning to end, but he is the only character in the story. The story is entirely egocentric perhaps, but at least the central character is throughout:

> The airplane flew up in the sky. And after he flew up, he flew down in the park. This goes up in the airport. It had a little accident and it had to fix it. The airplane fell down. (2 year old)

Then other characters appear, but they have no reality apart from their relationships to the main character.

> The Doggie
> The doggie jumped over the fence. The doggie went on the swing. He swinged on a swing. And he was in a park. The doggie jumped over the bike. The doggie jumped over the bear. The doggie jumped over a truck. The fence wriggled away. (2 year old)

At stage 2 there are others in the story but the main character is egocentric, the others act upon or are acted upon by the main character but there is no co-ordination of their actions or between them. As in spatial development the child initially coordinates all things to himself and only later coordinates the objects to each other. Also we now begin to get the enduring other. The other character is mentioned several times. He appears and reappears. Here is an example from a 3 year old girl.

> The monster and spider man
> The girl cried. He named Hook. He hurts girls. He go away. The end.

(IIb) At the second half of this stage interactions develop amongst the other characters also. Theirs is an objectification of their relationships: Thus a four year old says:

> Once there was a robber and then a girl was lost. And the robber came and put her in jail. And then the police came and got her out of jail. And then the police put the robber in jail.

They are coordinated together as well as to the main character.

Stage IIIa: Reversible Strings (5 year olds)

At age 5-6 years the major new event is the emergence of plot conservation. The child is concerned with uniting the actions of the story in some organized way. There tends to be an initial state (ball of clay), the middle transitional state (rolled to a sausage) and the return to the first state (ball again). The initial state is usually in the home or some well equilibrated place. Then there is action and danger elsewhere. Finally there is a return to the original situation. We have a reversibility of events in narrative just as we have them in physical conservation. The child apparently feels compelled to account for the continuing state of things.

> I'll tell you a story. He's going to be a pumpkin man. Once upon a time there was a pumpkin man. And he lived in a little pumpkin house close by the city. And he wanted to go to the city. So he went to the pumpkin mobile and he went faster than the speed of a bullet, more powerful than a locomotor. He could go down the highest hill in a single bound. And he went so fast that he past the store that he wanted to go to. Then when he got back home he went to bed. And that's the end. (5 year old)

In this analysis a fundamental shift has occurred from stage 2 and 3 to stage 4. The earlier stages are based on the analysis of character conservation, the later on the basis of action reversal. It is noticeable that the present conservation of plot structure, and the Proppian appearances of the dyad as the controlling structure occur at the same time (5-6) as does Maranda's stage 1 (being overcome). They are all different ways of talking about the same phenomenon. According to this Piagetian analysis the implication is that character and interaction gets coordinated before action, character from 2-5 years, and action thereafter.

Stage IIIb: Reversible Plot Structure (subplots....parallel action)

Towards 8 and 9 years, the simple and reversible plot sequence is modified by the addition of parallel sequences of a subordinate order. Words like while and meanwhile appear (meanwhile back at the ranch). The child can now hold one plot in mind while developing the subplot, and then can return to the first plot. He is into two dimensional classification. There is further organization into chapters which are initially simple chains but soon they acquire the reversible structure.

In sum, we have in this Piagetian sequence, conservation of main character, conservation of others, conservation of plot (as reversibility) then reversibility of plot through parallel plot. There are obviously later stages but these haven't been analysed as yet. All the pilot study indications are that this is an invariant sequence as we might expect.

One might use the metaphor of the musical stave to suggest that the characters are like the notes which are first differentiated, and conserved and the actions are like the bars or measures which subsequently take on regularity just as they did in the history of music.

Conclusion

The question was raised whether children's transition from home to school from 4 to 8 years is accompanied by a shift in the character of fantasy from a more private to a more public character. It was argued that if freely told and idiosyncratic stories could be made susceptible to structural analysis which had been found appropriate to mythology and folktales, and if there was a logical development manifested in childrens' story telling, then the thesis could indeed be maintained that their stories indicated a transition (an initiation process) into public legend. Their stories could both be regarded as the underbelly of our mythology an index of their socialization into that same mythology.

It was found that structural analyses of plot derived from Levi-Strauss, Vladimir Propp and Piaget all have the value in detecting developmental shifts. Our preference at the moment is for the Piagetian analysis as it is relatively more content free than the other systems. It deals with the same materials, but in terms of their operativity rather than in terms of their content. The Piagetian analysis subsumes the other, converting their "structural" approaches into content for its own purposes. Thus it is not a question of who overcomes who (as in the Maranda analysis), or of which sequence precedes which other (villainy before attack) but of the changing flexibility of the children in the use and reversal of these structures.

Paper #10. The Development of Structural Complexity in Children's Fantasy Narratives

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Abstract-

Spontaneously told stories collected from 80 children ranging from 3 to 12 years of age were analyzed according to a methodology based on the work of the folklorist Vladimir Propp. These stories were decomposed into their component action sequences and scored according to the complexity of structural organization. Results indicated that structural complexity increases with chronological age and therefore, validated the hypothesized order of acquisition. These findings suggest that, as in language development, the developmental order of acquisition of narrative structure is influenced by the level of structural complexity. In general, the order of acquisition of narrative structures appears to be similar to that of analogous linguistic structures. This suggests that there may be structural isomorphisms common to several different domains which are built on the same underlying cognitive structures. Moreover, this study demonstrates a methodology for investigating children's stories from a cognitive-developmental perspective.

According to Piaget (1951) the rudiments of fantasy play emerge in children around 12 or 13 months of age. While fantasy takes the form of play in young children, it generally manifests itself as dramatic role playing and storytelling in older children (Pulaski, 1973). A number of researchers have studied children's fantasy narratives from a diversity of perspectives. For example, researchers have investigated patterns of sex differences (Cramer and Bryson, 1973; Cramer & Hogan, 1975; May, 1966, 1969), imagination and creativity (Pulaski, 1973; Singer, 1966), modeling effects and creativity (Gottlieb, 1973), characters and themes (Ames, 1966), and ego development (Pritcher & Prelinger, 1963). For the most part, these studies have focused on the fantasy content of children's fantasy narratives and have generally been examined within the context of a psychoanalytic framework. Little attempt has been made to systematically investigate the cognitive dimensions of storytelling, i.e., the development of plot complexity and organization. The present study represents a departure from the traditional epiphenomenal view of children's narratives as the projection of inner psychological concerns and, instead, views them from the perspective of cognitive development.

Sutton-Smith, Botvin, and Mahony (1976) recently observed that the acquisition of narrative competence is a learning of increasingly structured performances and suggested an analytic approach to children's fantasy narratives similar to the developed by the Russian folklorist Vladimir Propp. In The Morphology of the Folktale Propp (1958) analyzed a corpus of 100 fairy tales and compared them according to their structural components. Propp noted that these tales could be decomposed into a number of motifs which could be further decomposed into a number of action elements of "functions." In Propp's terms, a function is understood as "an act of a character, defined from the point of view of its significance for the course of action" (p. 21). These elements may be expressed as verbal nouns (e.g., absence, interdiction, violation, interrogation, pursuit, departure, etc.) and when linked together they represent the plot or action of the folktale. Propp's methodology consisted of abstracting the sequence of predication or action occurring in each tale, symbolizing it, and combining these symbols together into an abstract formulation of each folktale. From his analysis Propp concluded that the number of basic elements (functions) are limited and always appear in the same order.

Similarly, children's fantasy narratives may be viewed as the concatenation of a series of actions or events in a more or less lawful and predictable way (Sutton-Smith, Note 1). Like Propp's functions these actions or events may be regarded as the basic units of analysis. Thus, children's narratives, like folktales, may be decomposed into an aggregate of structural components. However, while many of the narratives that children tell are similar to the fairy tales analyzed by Propp, the majority of children's fantasy narratives do not easily lend themselves to a direct application of Propp's system. For the purpose of our analysis, therefore, we have modified Propp's system, redefining and eliminating certain action elements as well as adding several new elements (Botvin, Note 2). Furthermore, in order to distinguish our elements from those defined by Propp, our fundamental structural unit has been termed a plot-unit. As in Propp's system, our elements are generally expressed as verbal nouns thereby indicating action (e.g., attack, escape, rescue, departure, capture, return, etc.) or potential action (e.g., threatening, situation, warning, threat, interdiction, reward, etc.).

Children's narratives are composed of two types of plot-units: primary and secondary (Sutton-Smith, Botvin, and Mahony, 1976). Primary plot-units are elements which represent both the motivation (impetus) for action or potential action, on one hand, and the resolution, on the other. That is, narrative $\underline{N}$ proceeds from state $\underline{A}$ to state $\underline{B}$, where both $\underline{A}$ and $\underline{B}$ represent primary plot-units. In this sense, primary plot-units serve to delimit the action of a narrative or episode within a narrative, and always occur in pairs forming dyads. Secondary plot-units are elements which represent action or potential action that is preparatory, intermediate, or consequential to the establishment of the boundaries of the narrative. The most important function of these elements is to mediate the action established in the initial primary plot-units and lead the action of the narrative to the final primary plot-unit. Thus, secondary plot-units function as transition elements between states *A* and *B*.

The most common primary plot-units occurring in our sample of children's fantasy narratives are similar to those found by Dundes (1964) in the tales of the North American Indians. They are *lack* (state of insufficiency), *lack-liquidated* (state of insufficiency removed), *villainy*, and *villainy-nullified*. While the movement of all narratives is toward a final state of equilibrium (i.e., a positive ending), this is not always achieved. Some narratives have negative resolutions where the main character, for example, fails to overcome the villain or recover some stolen property. Such narratives have final primary plot-units of either *lack-not-liquidated* or *villainy-not-nullified*. In general, however, children's fantasy narratives, like the tales of the North American Indians studied by Dundes, appear to be constructed around a nuclear dyad of something lacking (or villainous action) and a response in which the lack is liquidated (or the villainy is nullified). In this context, the minimum requirement for a tale is the presence of a nuclear dyad (e.g., lack + lack-liquidated, or villainy + villainy-nullified). However, more complex narratives may be formed by either stringing together several nuclear dyads to form episodes or by embedding one dyad within another forming subordinate plots or subplots. Moreover, each of these basic structural types may be augmented by interposing secondary plot-units between the initial and final primary plot-units of the nuclear dyad yielding a total of six different structural types.

Following general developmental principles such as those enunciated by Werner (1957) and implications from psycholinguistic research (Brown, 1973), these structural types were ordered into a hypothetical developmental sequence forming levels of structural complexity. In each case the basic unit of analysis consists of plot-units, and the basic structure is the dyad. Increasing structural complexity has been conceived in terms of the articulation and hierarchical organization of nuclear dyads as well as the integration of intermediary elements (secondary plot-units) between the initial and final terms of the nuclear dyad.

The purpose of the present investigation, therefore, is to determine (a) if there is a developmental sequence of increasing structural complexity in children's fantasy narratives, and (b) if that sequence conforms to our hypothetical levels of structural complexity.

Method

Subjects

The subjects in the present investigation were 80 children randomly selected from a larger sample of 150 children drawn from the New York City public school system. There were 10 children from each of the following age groups: 5-, 6-, 7-, 8-, 9-, 10-, and 12-year-olds. The very youngest age group, however, was composed of four 3-year-olds and six 4-year-olds. In addition, each group contained an equal number of males and females. The age range was based on our pilot research and was designed to include a wide cross-section of children from the age period considered to be critical to the development of narrative competence.

Procedure

The children in the sample were seen individually and asked to make up a story. They were told it could be as long (or as short) as they wished, and that it could by about anything they wanted. In addition, to avoid stereotyped stories, it was suggested that they try to make as much of it their own as possible. These stories were then taken down in longhand by graduate students. Since this investigation is part of a larger longitudinal study our corpus generally contained several stories from each of the children in our sample. For the purposes of the present study only the very first story told by each of our subjects was included in our analysis. There was, however, one additional criterion used in selecting stories to be included in the present study: the stories must contain action or some approximation of a plot. That is, the fantasy narratives must approximate a story in the conventional sense. Therefore, if the first response to the instructions to make up a story were, for example, a rhyme, a poem or a description (i.e., did not contain action) it was not included. In such cases the first response was excluded and the second response was used.

Scoring

A total of 80 spontaneously told stories (one from each child) were decomposed into action elements and analyzed in terms of the organization of primary and secondary plot-units. Stories were then scored according to the following seven hypothetical levels of structural complexity.

Level 1. Narratives at this level lack coherence and structural unity. Prior to this, children's narratives are the result of juxtaposing several proper nouns with only the implication of action. However, while narratives at this level do contain a series of events, they are essentially the result of an associative concatenation of events in a fragmented and unorganized fashion.

Example: The little duck went swimming (Initial Situation). Then the crab came (Arrival). A lobster came (Arrival). And a popsicle was playing by itself (Unclear).

$$IS + A + A + U$$

Level 2. Narratives at this level are short but structurally symmetrical. They are characterized by the presence of one nuclear dyad. Although these narratives may have action elements either before or after the nuclear dyad, no elements occur between the initial and final terms of the dyad.

Example: An astronaut went into space (Departure). He was attacked by a monster (Villainy). The astronaut got in his spaceship and flew away (Villainy Nullified).

$$Dpt + \underline{V} + \underline{VN}$$

Insert Figure 1 about here

Level 3. This level is characterized by the internal expansion of the narrative through the use of intermediate action elements, i.e., secondary plot-units. Narratives at this level are differentiated from those of level 1 by the elaboration of action through interposing elements between the initial and final terms of the nuclear dyad.

Eample: Once there was a little girl. She went walking in the woods (Departure) and soon it was dark. It was so dark that she couldn't find her way home (Lack). She cried and cried (Lack Made Known). An owl heard her and asked if she was lost (Interrogation). She said yes (Acquisition of Information). The owl said he would help her find her way home (Alliance). He flew up in the air and looked around (Reconnaissance). After finding out which way to go (Reconnaissance Fulfilled), he said, "Lkay follow me." Then he led the girl out of the woods and showed her the way home (Lack-liquidated). When she got back home (Return) she was so happy. She gave the friendly owl a kiss and thanked him (Reward), and told her parents she would never go walking in the woods again by herself. The end.

$$\text{Dpt} + \underline{\text{L}} + \text{LMK} + \text{Int} + \text{AI} + \text{All} + \text{R} + \text{RF} + \underline{\text{LL}} + \text{Rtn} + \text{Rwd}$$

Level 4. These narratives are characterized by the conjunction of two or more action sequences (primitive episodes). That is, these stories are the result of the concatenation of elementary dyadic structures. Moreover, there is the loss of the intervening elements of level 3 and a regression to level 2 constructions, while there is an attempt to expand the boundaries of the narrative through repetition. Increases along one dimension result in decreases along another dimension.

Example: There was this friendly lion in Asia (Initial Situation), but he was captured (Villainy) and brought to a zoo. Then the lion escaped (Villainy Nullified). He was walking down the road (Initial Situation) and a truck tried to run him over (Villainy), but he managed to get out of the way (Villainy Nullified). He began to get hungry (Lack) so he ate a rabbit (Lack-Liquidated). The end.

$$\text{IS} + \underline{\text{V}} + \underline{\text{VN}} + \text{IS} + \underline{\text{V}} + \underline{\text{VN}} + \underline{\text{L}} + \underline{\text{LL}}$$

Level 5. This level is characterized by the conjunction and coordination of elementary dyadic structures as well as the internal expansion of intermediate action elements. Narratives at this level, therefore, are composed of two or more well-developed episodes.

Example: Once Batman and Robin were in a haunted house (Initial Situation). Robin fell through a trap door in the floor and landed in an underground river (Lack). Robin pressed his magic watch to signal Batman for help (Lack Made Known). Batman heard the signal and looked all over the house for Robin (Search). Then he saw the trap door (Find). He lowered a rope from his Bat-belt and pulled Robin out of the water (Lack-Liquidated). Then they heard a scream (Deception). They thought it was a girl, but it was Spiderman (Deception Fulfilled). They looked around and the screams seemed to come from the attic. Batman and Robin ran up to the attic to save the girl but Spiderman was hiding behind the door waiting for them (Threatening Situation). When they came in Spiderman threw an extra strong Spider-net over them (Villainy). They tried to get out but they couldn't (Attempted Escape). "I've got you now," he said. "I'm going to kill you, and Wonderwoman and I are going to take your Batmobile and live in your Bat Cave" (Threat). But Batman told him that he had a special key for the Batmobile and Bat Cave (Deception). And when Spiderman came over to get the key (Deception Fulfilled) Batman hit him right in the face and knocked him down (Counterattack). Then Batman and Robin got out of the net and beat up Spiderman (Struggle, Victory) and put him in jail (Villainy Nullified) so he wouldn't bother them anymore. The end.

$$\text{IS} + \underline{\text{L}} + \text{LMK} + \text{S} + \text{F} + \underline{\text{LL}} +$$
$$\text{D} + \text{DF} + \text{TS} + \underline{\text{V}} + \text{AE} + \text{T} + \text{D} + \text{DF} + \text{CA} + \text{Str} + \text{Vct} + \underline{\text{VN}}$$

Level 6. This level is characterized by the single embedding of one dyadic structure within another, i.e., the subordination and hierarchical organization of nuclear dyads. The main action of the narrative is interrupted by a sequence of action. In other words, this is the beginning of the use of subplots.

Example: A man named Mr. Dirt lived in the country all by himself and owns a farm (Initial Situation). One calf got away and went into the woods and headed for the mountains (Lack). So Mr. Dirt went up the mountain after the calf (Departure, Search). On the way a bear came after Mr. Dirt (Villainy). He ran up a tree (Escape) and the bear climbed up the tree after him (Pursuit).

Mr. Dirt threw his ax at the bear (Counterattack) and hit the bear in the head. Blood poured out of his head (Wound) and the bear fell down and died (Villainy Nullified). A few minutes later the calf ran over to Mr. Dirt (Find) and they went back to the farm (Return, Lack-Liquidated).

$$IS + \underline{L} + Dpt + S + (\underline{V} + E + P + CA + W + \underline{VN}) + F + Rtn + \underline{LL}$$

Level 7. This level is similar to level 6, but is characterized by the multiple embedding of dyadic structures. The main action sequence is interrupted by two or more subsequences. There is the subordination of plots within plots.

Example: Once upon a time there was a little fish named Josh (Initial Situation) and he was going to a fish fair (Departure) and there were fishers over the fish fair (Threatening Situation and the fishermen caught everyone including Josh (Villainy). Then they put all the fish in the fishers' hole (Lack) and there were sharks and sting rays (Threatening Situation) and a stingy ray was going after Josh (Villainy) and then a shark chased the sting ray because he wanted to eat the sting ray (Fortuitous Occurrence). So the sting ray stopped chasing Josh (Villainy Nullified) and ran away from the shark. So the shark and the sting ray got into a big fight. But then another shakr gobbled up his mother and father and sister (Fortuitous Occurrence). And then he left (Villainy Nullified). And then the boat was sailing and sailing and sailing. There was a big storm that night. And it hit against the rocks and made a big hold in the fishes' hole (Fortuitous Occurrence) and Josh escaped (Lack-Liquidated) and went back to his house (Return) and he stayed there until he was big.

$$IS + Dpt + TS + V + \underline{L} + TS + (\underline{V} + FO + \underline{VN}) + (\underline{V} + FO + \underline{VN}) + FO + \underline{LL} + Rtn$$

Scoring Reliability

Since the scoring of the narratives in this study essentially involves a two-stage process (decomposition of the narratives into component plot-unit and determination of the level of structural complexity based on the organization of these plot-units), it was necessary to establish reliability on each of these two levels. After 3 hours of training, two graduate students independently analyzed 28 narratives into their component plot-units (syntagmatic coding) and scored them according to their level of structural complexity (structural scoring). Comparison of the results of the two raters indicated an agreement of .81 for syntagmatic coding and .86 for structural scoring. The discrepancy in the reliability scores for syntagmatic coding and structural scoring was the result of errors made in the designation of plot-units not crucial to the scoring of structural complexity.

Results

Structural Complexity and Age

Table 1 provides the distribution of subjects by level of structural complexity and age. Analysis of product moment coefficient of correlation of level of structural complexity with chronological age yielded r (78) = .70, p .001. The correlation of structural level and age was high particularly when some degree of variability due to individual differences would be expected even when it is assumed that there is a natural ontogenetic sequence. This would seem to be strong evidence for the empirical validity of the seven hypothetical levels of structural complexity.

Inspection of the total number of subjects in each of the seven hypothetical categories indicates that 31.25% of the fantasy narratives in our sample were well-developed episodes (level 5) and 16.25% were primitive episodes (level 4). The most frequently used general structure was episodic (47.5%), which merely involves the concatenation of two or more action sequences. Only 12.5% of the children in our sample told narratives more complex than level 5.

Insert Table 1 about here

Narrative Length

An analysis of variance computed for narrative length, that is, for the number of plot-units used in fantasy narratives at each of the seven structural levels yielded a significant main effect for narrative length *F* (6, 73) = 27.89, *p* .001 (table 2). While the mean number of plot-units used in the narratives in our sample progressively increased from level 1 to level 7, with the exception of the movement from level 5 (18.92) to level 6 (18.40), Scheffe's test of a posteriori comparison yielded only one significant increase which was for the difference between level 3 (7.19) and level 4 (14.21), p .05. All other comparisons were not significant.

Insert Table 2 about here

The shift from level 3 to level 4 appears to be an important developmental milestone since the acquisition of level 4 structures facilitates the emergence of an increased number of plot-units.

Narrative Length and Structural Level

In order to further examine the relationship between narrative length and structural level, a Pearson product moment coefficient of correlation of the number of plot-units and the level of structural complexity was computed. The results of this analysis yielded *r* (78) = .72, *p* .001. This would seem to be added evidence that the acquisition of increasingly complex narrative structures facilitates the utilization of an ever greater number of plot-units.

Narrative Length and Age

Earlier research by Sutton-Smith (Note 1) suggested that narrative length was highly correlated with age. Furthermore, our recent pilot work seemed to confirm this previous finding. Therefore, in order to determine the relationship between narrative length and chronological age, a Pearson product moment coefficient of correlation of age and the number of plot-units was computed. The results yielded *r* (78) = .57, *p* .001. Therefore, both the total number of words in a narrative and the total number of plot-units appear to be highly related to age.

Interrelationship of Age, Length, and Structural Level

Since it is evident from the above analysis that both age and length are highly correlated with level of structural complexity, it was necessary to determine if there was a significant difference between these correlation coefficients. A comparison of correlation coefficients (McNemar, 1969) for the number of plot-units and structural level (*r* = .72) and number of plot-units and chronological age (*r* = .57) indicated that number of plot-units correlates higher with structural level than with age (*p* .01). However, while this analysis suggests that the progressive increase in the number of plot-units used in composing a fantasy narrative is more a function of structural complexity than age, it still leaves ambiguous the relative importance of chronological age. In order to further understand the relationship of age, length, and level of structural complexity, a partial correlation technique was used to "partial out" the effects of age in the correlation of length and structural level. The results of the partial correlation of length and structural level with age held constant yielded *r* (78) = .55, *p* .001. The difference between the correlation of length and structural level (*r* = .72) and the partial correlation of length and structural level (*r* = .55) indicates that only about .17 (about 3%) of the correlation between length and structural level was due to the influence of chronological age (*p* .05). This, therefore, suggests that the correlation between length and structural level is not significantly influenced by age, but is primarily a result of the ability to use increasingly complex narrative structures.

Sex Differences

The findings of a previous study (Sutton-Smith, et al., 1975) indicated that narrative length was approximately the same for both boys and girls, but suggested that girls may achieve a higher level of structural complexity than boys. However, chi-squares computed for sex and structural level (= 1.78, *p* .05) and for sex and narrative length (=.29, *p* .05) failed to reveal any sex differences for either narrative length or level of structural complexity.

Discussion

The present study demonstrates that children's fantasy narratives can be viewed as the concatenation of a series of actions or events which when properly organized form a logical and coherent whole. Initially, the fantasy narratives of young children appear to be devoid of any manifest structure. This, in part, accounts for their apparently incoherent, rambling character. Piaget (1955) noted that children under seven years of age are incapable of making a coherent whole out of a story or explanation, but rather "tend to break up the whole into a series of fragmentary and incoherent statements" (p. 130). Children appear to focus on events without taking into account their temporal, causal, or logical order. Very young children use the simple juxtaposition of related events (e.g., *X* and the *Y*) where there is an apparently random concatenation of events and the "and then" does not represent any kind of temporal, causal, or logical relationship between the events *X* and *Y*, but merely facilitates the juxtaposition of these events. Piaget has suggested that the plot distortion characteristic of young children is a function of memory, logic, and egocentrism.

According to Werner, development "proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation, and hierarchic integration" (Werner, 1957, p. 126). That is, development is viewed as a unitary progression toward increasingly complex hierarchical organization. Psycholinguistic studies offer evidence of the validity of Werner's orthogenic principle, at least in terms of the relative complexity of certain linguistic structures and their developmental order of acquisition. For example, children progress from (a) a series of single word utterances, to (b) simple sentences, to (c) the coordination and conjunction of simple sentences, to (d) embedded sentences (Brown, 1973). If children's fantasy narratives are to be viewed from a cognitive-developmental perspective, then we might expect a course of development for increases in the complexity of narrative structures similar to that of analogous linguistic structures.

The main findings of the present investigation validate our seven hypothetical levels of structural complexity for children's fantasy narratives.[1] Based on these results, narrative development appears to proceed in a manner consonant with general developmental principles. Moreover, the order of acquisition of narrative structures is similar to that of analogous linguistic structures (see table 3). In general, children appear to progress from (a) the concatenation of a series of single plot-units, to (b) the construction of narratives around a simple nuclear dyad, to (c) the conjunction and coordination of a series of nuclear dyads, to (d) the embedding of subordinate dyads within a superordinate dyad.

Insert Table 3 about here

More specifically, children under the age of three tend to concatenate a series of proper nouns without any statement of action or events, but with merely the *implication* of action. Our data show that at around the ages of 3 or 4 children begin to explicitly state events and action, yet these narratives are incoherent and fragmented. They are the result of simple juxtaposition. Primitive (dyadic) narrative structures emerge around the age of 5. At this age children seem to have learned that actions are organized around a conflict and that narratives progress from some initial state *A* to some final state *B*. Children around the age of 6 begin to elaborate and expand narratives of this elementary dyadic type and rather than a direct movement from *A* to *B* the fundamental action is mediated by a number of events that connect *A* and *B* together, giving the narratives more interest and coherence.

The conjunction and coordination of multiple action sequences (episodes) marks a major developmental acquisition. While the length of children's fantasy narratives (number of plot-units) progressively increases with added structural complexity, the most dramatic increase in narrative length occurs once children learn to form simple episodes through the repetition of the basic dyadic structure, i.e., the shift from level 3 to level 4. As Sutton-Smith et al. (1975) recently noted, narrative complexity may at first be manifested only as repetition. In some cases this may be the result of the simple repetition of the first nuclear dyad (e.g., lack + lack-liquidated, lack + lack-liquidated) or it might involve the use of a different nuclear dyad in the subsequent episode (e.g., lack + lack-liquidated, villainy + villainy-nullified).

At first glance, the number of elements used by children in their fantasy narratives appears to be a function of chronological age. However, the present findings clearly indicate that it is structural complexity which, in large part, accounts for the length of the narratives. In particular, it is the ability to chain together action sequences constructured around nuclear dyads that permits the use of additional plot-units. Structure, then, tends to constrain narrative length.

One question that arises in this context is that of verbosity. That is, since the results indicate a clear relationship between narrative length and structural complexity one might argue that the more a child talked when asked to tell a story, the higher his structural level was likely to be. As has been pointed out above, the salient dimension utilized in this study is the story-event or plot-unit. A single plot-unit may be expressed in a brief phrase of 5 words or by an entire paragraph of 50 words or more. Examination of the examples provided above may help to clarify this point. For example, the level 4 narrative (55 words) and the level 6 narrative (105 words) contain fewer words than the level 3 narrative (128 words), and both the level 6 narrative (109 words) and the level 7 narrative (174 words) contain fewer words than the level 5 narrative (226 words). Thus, while children's stories may tend to get longer both in terms of the gross number of words and the number of plot-units, mere verbosity does not in itself seem to be a relevant variable. Rather, structural level appears to be a function of the number of plot-units and, more importantly, the manner in which these elements are organized into an integrated whole.

Moreover, while children begin to use embedded dyadic structures at around the age of 9, the use of multiple embedded structures does not appear to become a frequently used structure until after age 12. Only 12.5% of the children in our sample told fantasy narratives with subplots, while 47.5% of the children in our sample told episodic narratives. One possible explanation for the paucity of level 6 and level 7 narratives is that children at this age typically do not possess the cognitive competence to utilize more complex structures. While episodic fantasy narratives involve the conjunction of additional action sequences in an "add on" fashion and thus permit the spontaneous development of successive episodes, narratives with one or more subplots require considerably more planning. In composing level 6 and level 7 narratives, it is necessary to form an internal representation of the general structure before actually beginning the narrative. In addition, level 6 and level 7 narratives place a greater demand on memory. For example, if narrative N is moving from state A to state B through events w,x,y,z and these events are interrupted by subplot S which moves from states A' to B' through events m,n,o,p it is necessary to remember state B as well as the events w,x,y,z while one is elaborating the action sequence which leads from A' to B'. As the number of intervening subplots increases the degree of complexity also increases, since the addition of each intervening sequence places an increased burden on memory. Thus, as structural complexity increases greater demands are placed on the child's cognitive capacity.

This is analogous to what occurs in linguistic development. As Bever (1970) pointed out, one of the main cognitive constraints on language development and the use of more complex structures is memory. Immediate memory constrains the use of embedded structures and limits the length of intervening sequences. Therefore, center embedded relative clause sentences are more difficult than left- or right-branching sentences, and the difficulty increases with the number of embedded clauses. In other words, the complexity of a grammatical sequence increases as the number of intervening sequences increases.

In one sense the findings of the present study are discordant with earlier findings of Piaget (1955). The children in our sample were able to compose primitive fantasy narratives around the age of 5, two years earlier than the children in Piaget's sample. Our results, along with the results of Christie and Schumacher (1975), suggest that the kindergarten child may be more capable of abstracting and producing relevant thematic information than has been previously assumed. Although the issue of cultural determinants and generalizability are beyond the scope of the present study, there is some evidence that children may attempt to imitate available models (Botvin, Note 3; Abrams and Sutton-Smith, in press). One might expect somewhat different results from children with different models. Botvin found a high occurrence of media items in the stories of 6- and 7-year-olds. The most prominent of these were TV and comic book characters, sements of popular movies, songs and commercial jingles, and segments of well-known ad slogans and TV movies. Moreover Abrams and Sutton-Smith noted that children's narratives tend to be modeled after their favorite TV shows in terms of both form and content, although somewhat unsuccessfully at first. For example, while they found that the most popular TV shows for children from the ages of 5 to 7 were cartoons like Bugs Bunny and Batman, it was not until the ages of 7 to 9 that children were able to successfully produce similar tales. The results of the present study partially corroborate these findings, at least to the extent that children from 7 to 9 years of age appear to use the same kind of narrative structure (episodic) generally found in children's cartoons. Yet, while imitation may be an important factor in narrative development, the time lag between these children's interest in episodic stories and their ability to produce stories of a similar nature suggests that certain cognitive constraints may be operative, i.e., children may be limited by their level of cognitive development.

Furthermore, the findings of the present study would seem to indicate that there may be structural features of mental life which are common to several domains of expression (in the present case to both language and narrative). As Goodson and Greenfield (1975) have suggested, such commonalities may be the manifestation of underlying cognitive structures. The discovery of a sequence of such cognitive structures underlying children's fantasy narratives has the further implication that the interpretation of these tales only in "projective" terms seriously underestimates their normative role in socialization. There is support here for the more problem-solving or constructive approach to fantasy which has been advanced in recent years by Klinger (1971), Singer (1966), and Sutton-Smith, Botvin, and Mahony (1976). Such a constructive approach to children's fantasy narratives would suggest that the child, through his fantasy narratives, is drawn steadily into modes of cultural expression no less formulated than those to be found in the games that children play.

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Footnotes

[1] These findings have been replicated in a recently completed study by Botvin involving the spontaneously told narratives of 140 children from ages 3 to 12. Although the focus of the study was somewhat different (the acquisition of narrative syntax), analysis of narrative structure indicated high correlations for level of structural complexity and age (r (138) = .81, p .001), narrative length and age (r (138) = .57, p .001), and structural complexity and narrative length (r (138) = .75, p .001). This study also found a high frequency of level 6 and level 7 narratives among the 11- and 12-year-olds, confirming the fact that children of these ages do tell stories with embedded plots.

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Figure 1

Schematization of Levels of Structural Complexity:

Narrative N is composed of primary (upper case) and secondary (lower case) plot-units which may be formed into single narratives, coordinated as episodes, or hierarchized into plot and subplot(s).

Figure Legend

Table 1

Distribution of Ss by Age and Level of Structural Complexity

(N = 10 per Age Group)

Levels of Structural Complexity

Age	I	II	III	IV	V	VI	VII
3 - 4	9	1	--	--	--	--	--
5	1	2	6	1	--	--	--
6	--	1	6	2	1	--	--
7	--	--	2	5	2	--	1
8	--	--	2	2	5	1	--
9	--	--	2	1	5	--	2
10	--	--	1	--	8	--	1
12	--	--	--	1	4	4	1

$p < .001$

Table 2

Analysis of Variance Summary Table

Mean Number of P-Units per Level of Structural Complexity

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F
Between	4, 132.85	6	688.81	27.89*
Within	1, 802.95	73	24.70	
Total	5, 935.80	79		

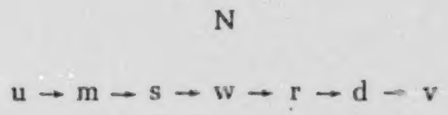
*p < .001

Table 3

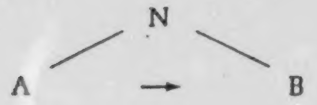
Structural Principles Manifested in Linguistic and Narrative Development

Structural Principles	Linguistic Development	Narrative Development
Lack of Integration	Series of One Word Utterances	Series of Plot-Units
Articulation of Elementary Structures	Simple Sentences	Simple Dyadic Structure
Conjunction and Coordination	Compound Sentences	Episodic Structure
Hierarchical Organization (Superordination and Subordination)	Center Embedded Sentences	Embedded Dyadic Structure (Subplotting)

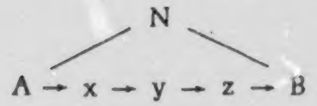
1


N
u → m → s → w → r → d → v

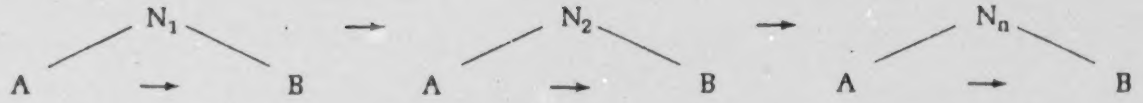
2


N
A → B

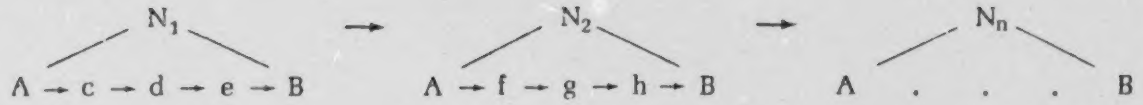
3


N
A → x → y → z → B

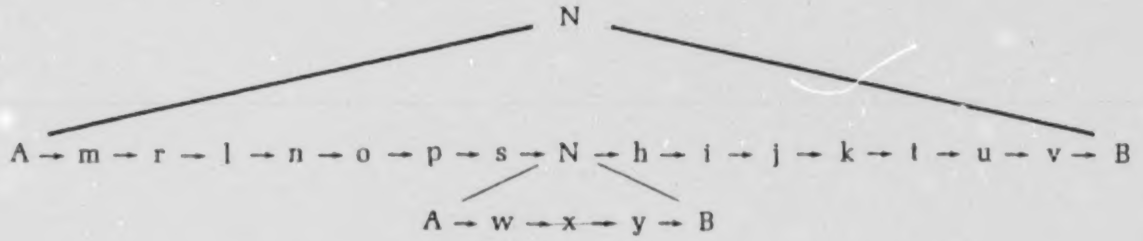
4


N₁
A → B
N₂
A → B
Nn
A → B

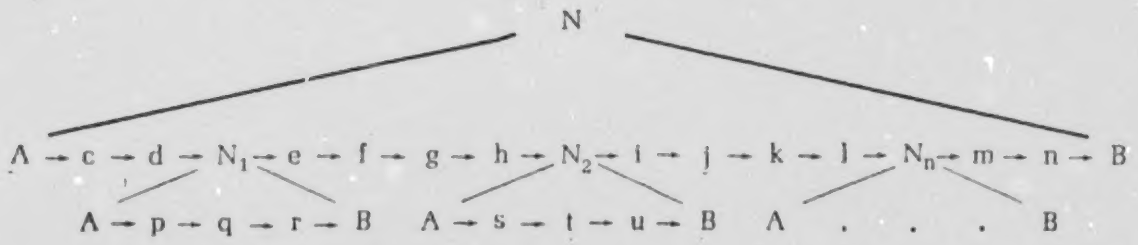
5


N₁
A → c → d → e → B
N₂
A → f → g → h → B
Nn
A . . . B

6


N
A → m → r → l → n → o → p → s → N → h → i → j → k → t → u → v → B
A → w → x → y → B

7


N
A → c → d → N₁ → e → f → g → h → N₂ → i → j → k → l → Nn → m → n → B
A → p → q → r → B
A → s → t → u → B
A . . . B

Paper #11. A Syntagmatic Approach to Children's Fantasy Narratives

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In The Language of Thought of the Child Piaget (1955) describes the difficulty children under the ages of seven and eight have in organizing a story or explanation into a coherent whole. Typically, very young children appear to focus on events and facts without taking into account their temporal, causal, or logical order. Related facts and events are concatenated by means of the conjunction "and then." Thus, through simple juxtaposition or phenomenal contiguity, related facts and events are merely placed side by side in any given narrative sequence, e.g., X and then Y. According to Piaget, synthetic incapacity "renders the child incapable of making a coherent whole out of a story or an explanation but makes him on the contrary, tend to break up the whole into a series of fragmentary and incoherent statements" (p. 130). Moreover, Piaget has suggested that the plot distortion charactertistic of young children is a function of memory, logic and egocentrism. Yet, despite the rambling and incoherent nature of these narratives, "the child knows quite well, so far as he is concerned, in what order the events of a story or the different actions of a mechanism succeed one another, but he attaches no importance to this order in his exposition" (Piaget, 1955, p. 121).

Although the child's ability to recall or reconstruct an ordered series of events may be dependent on the acquisition of specific cognitive skills (e.g., reversibility) or fundamental concepts (e.g., causality or spatio-temporal relations), his inability to organize his own fantasy narratives would seem to be primarily a function of undeveloped expository skills, i.e., lack of an appropriate rule system for organizing and presenting his fantasy material in narrative form. As egocentrism declines through social interaction with peers, the child learns to consider the perspective of others and thus present verbal materials in a manner comprehensible to his listeners. However, it would seem that the decline of egocentrism, while certainly necessary, may not be a sufficient condition for the production of coherent and interesting fantasy narratives. Like other manifestations of the semiotic function (see Piaget, 1969), storytelling would seem to involve the gradual acquisition of a rule system or narrative grammar.

While the developmental acquisition of a rule system or grammar has been amply documented in the areas of play (Piaget, 1951; Sutton-Smith, 1975b) and linguistics (Brown, 1973), little attempt has been made to study the development of narrative competence. For the most part, studies of children's narratives have focused on the fantasy content and have generally been examined within the context of a psychoanalytic framework (e.g., Ames, 1966; Pritcher & Prelinger, 1963). From this perspective the fantasy manifested in children's narratives is construed to be the result of unconscious conflicts, sexual interests, defenses against anxiety, phobias, aggression, identification with the aggressor, or withdrawal from fear of risk or competition (Singer, 1966). Few investigations have systematically examined the formal (structural) dimensions of children's fantasy narratives. This may be the result of the lack of an adequate methodolgoy for analyzing children's narratives.

Recently, Sutton-Smith, Botvin, and Mahony (in press) stated that the acquisition of narrative competence is a learning of increasingly structured performances and proposed three systems of structural analysis:
(1) a paradigmatic approach based on the work of the Marandas (1971),
(2) a syntagmatic approach based on the work of Propp (1929), and
(3) a Piagetian approach. Each of these systems of analysis represents

an alternative to the content-oriented approaches of previous research. The present paper is an elaboration of the second structural approach and is regarded as the first step in the formulation of a grammar of children's narrative.

The Syntagmatic Approach

Structural Analysis

A potential alternative to a content-oriented approach to the study of children's fantasy narratives is offered by structural analysis. By and large, structural analysis has proved to be a powerful methodology and has been applied to a number of diverse areas. For example, structural analysis has been used to study linguistics (de Saussure, 1959), language development (Ervin, 1964), anthropology (Levi-Strauss, 1963), ego development (van den Daele, 1975), and cognitive development (Piaget, 1970).

In general, structural analysis focuses on the whole and the relationship between the component parts. More specifically, structural analysis is concerned not with the specific components of a whole, but with the interrelationship of these components. "The essential quality of the structuralist method, and its fundamental tenet, lies in its attempt to study not the elements of a whole, but the complex network of relationships that link and unite those elements" (Lane, 1970, p. 14). The goal of structural analysis, then, is to isolate regularities and reduce them to a set of specific rules. Just as members of a society standing in a kinship relation to other members constitute a lexicon of permissible relations, structural analysis of children's fantasy narrative would provide rules which would determine what elements may be legitimately and/or meaningfully linked together.

Structural Analysis and Folklore

For the folklorist, the structural approach "consists of the discovery of significant elements and their order" (Kongas and Maranda, 1962, p. 135). More specifically, the analysis of structure involves "the isolation of recurrent units, the determination of the relationship these units may have, singularly or multiply, with the whole structured system" (Waugh, 1966, p. 155). A fundamental problem intrinsic to structural analysis is the definition or determination of the structural components or recurrent units. That is, the difficulty of determining what should be taken as the basic unit of analysis and what should be regarded as structure. Since structuralism is a dynamic methodology (i.e., is still evolving), there is considerable disagreement about what consitutes structure and what elements are to be taken as the basic unit of analysis (Lane, 1970). For example, in the case of narratives, structure can mean a variety of things. According to Colby (1975) it can mean either plot, style, grammar, symbolism, or level of tension. Perhaps as a result of this difficulty two distinct types of structural analysis have emerged in the study of folklore.

Syntagmatic analysis

The first type of structural analysis is referred to as syntagmatic. In this type of analysis the structural or formal organization of the narrative is delineated following the chronological order of the sequence of elements. Syntagmatic analysis is a positional or linear analysis of the plot structure of a narrative which depends upon the order of predicates within a given narrative sequence. For example, if narrative N is composed of the event sequence A + B + C + D the analysis would focus on the chronological relationship between events A, B, C, and D. That is, the narrative is analyzed in terms of the event sequence characterizing that particular narrative. Thus, any given narrative may be reduced to a positional string of symbols which represents the chronology of events occurring in that narrative. This type of analysis is specific and precise, and facilitates the discovery of syntax, i.e., the rules by which the elements of a narrative are organized.

Paradigmatic analysis

The paradigmatic approach focuses on the general underlying pattern or paradigm of the narrative. This type of analysis is very different from suntagmatic analysis. First, it is usually based on an a priori principle of binary opposition. Unlike syntagmatic analysis, the natural narrative order is not preserved. "Rather, the elements in the narrative are taken out of the 'give' order and are regrouped in one or more analytic schema" (Dundes, 1968, p. xi). The paradigmatic matrix typically focuses on the mediation of polar opposition such as life-death, creation-destruction, success-failure, etc. Moreover, this approach permits a more general formulation of the "structure" of a particular narrative, and depends on hypothetical generalizations derived from the course of action in the narrative. As Waugh (1966) noted, the objective of paradigmatic analysis is to "derive a descriptive statement about the logical relationship between elements which may be arbitrarily isolated within various folklore genres" (p. 161).

According to Dundes (1968), the linear sequential or syntagmatic approach is both empirical and inductive since it is firmly grounded in the "data" of the narrative. However, the paradigmatic approach is speculative and deductive, depending on hypothetical generalizations concerning the underlying (i.e., implicit) structure of the narrative. The work of Propp (1928) and Dundes (1964) are examples of the syntagmatic approach, whereas the work of Levi-Strauss (1963) and the Marandas (1971) are examples of the paradigmatic approach. While the paradigmatic approach is inherently interesting and may have great heuristic value, our approach, in the tradition of Propp, is exclusively syntagmatic since our primary objective is to delineate the rules of composition or syntax children use in constructing their fantasy narratives.

Propp's Morphology

Structural (syntagmatic) analysis of narratives has its genesis in the work of Russian folklorist Vladimir Propp. In The Morphology of the Folktale Propp (1928) analyzed a corpus of 100 Russian fairy tales and compared them according to their structural components. Propp observed that fairy tales decompose into motifs which may be further decomposed to yield action elements, the basic structural unit of the tale. Once tales have been analyzed into their component parts they may be compared on the basis of these structural components. According to Propp, "The result will be a morphology (i.e., a description of the tale according to its component parts and the relationship of these components to each other and to the whole)" (p. 19).

Functions. Folktales are composed of both constants and variables. That is, while the names of the characters and their respective attributes change, their actions and functions remain constant. This observation suggested to Propp the possibility of studying narratives "according to the functions of its dramatis personae" (p. 20). The following examples from Propp may be helpful in clarifying the meaning of the function.

(1) A tsar gives an eagle to a hero. The eagle carries the hero away to another kingdom.

(2) An old man gives Sucenko a horse. The horse carries Sucenko away to another kingdom.

(3) A sorcer gives Ivan a little boat. The boat takes Ivan to another kingdom.

(4) A princess gives Ivan a ring. Young men appearing from out of the ring carry Ivan away into another kingdom.

In each of these four short "tales" the action or particular event sequence is exactly the same. However, the specifics of each of these tales is quite different. The action of these "tales" when generalized and stated abstractly in each case yields (a) a receipt of a magical agent and (b) a translocation. The main focus of this type of analysis, then, is on what the characters do and not on who does it or how it is done. Thus, the functions (events) of a tale are recurrent units and therefore serve as the basic unit of analysis. A function represents an action or event and is generally expressed as a verbal noun (e.g., interdiction, flight, interrogation, violation).* Moreover, functions are defined independent of the character performing them. For example, it does not matter whether the character abducted in a narrative is the tsar's daughter or the daughter of the court jester. Since functions are defined for their meaning in the course of the action of the tale, identical acts can have different meanings (i.e., represent different functions); and, conversely, different acts may have the same meaning. For example, the transference of money in a tale may have two different purposes and thus meanings: the transference may occur either (1) to buy a magical agent or (2) as a reward for bravery. By way of definition, a function is understood as "an act of a character defined from the point of view of its signficance for the course of the action" (p. 21). For example:

(5) A tsar had three beautiful daughters (initial situation). The daughters are told not to stay in garden after dark (interdiction). They go for a walk (departure) in the garden and before long it gets dark (violation). A dragon kidnaps them (villainy). They call for help (call for help). Three heroes go searching for them (consent to counteraction, dispatch of the hero from home). They fight three battles with the dragon (struggle of hero with villain, victory of hero). Rescue of the daughters (liquidation of the misfortune). They all return home (return of heroes). The heroes are given a chest of gold (monetary reward).
(Propp, 1928, p. 128)

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* See Appendix I for a complete index of Propp's 31 functions.

Schematically, this tale would be represented by the following string:

(6) IS + I + D + V + VL + CFH + CCA + DH + SWV + VCT + LM + R + RWD

Propp's analysis of the 100 Russian fairy tales in a similar manner to that in the above example led him to the following conclusions. First, functions of characters serve as stable, constant elements in a tale, independent of how and by whom they are fulfilled. They constitute the fundamental components of the tale. Second, the number of functions known to the fairy tale is limited (thirty-one). Third, the sequence of functions is always identical. That is, tales with identical functions can be considered to be of the same type. However, all tales do not contain all of the 31 functions. Yet, the absence of particular functions does not change the order of those present. Functions may be omitted, but when they occur they must occur in a prescribed order. "The sequence of events has its own laws...theft cannot take place before the door is forced" (p. 22).

In Propp's system some functions go together, forming pairs or dyads (e.g., interdiction-violation, struggle-victory). However, it is not necessary that these functions occur together. In many cases, they may be used indpendently. For example, violation may be used without being first preceded by interdiction. Other functions appear to form groups (e.g., villainy, dispatch, decision for counteraction, and departure).

Characters. Although Propp's system focuses primarily on the actions or events occurring in the fairy tale independent of the characters performing them, the occurrence of a number of character types in these tales is noted. In all, Propp has observed seven general types of characters. They are: villains, mediators, heroes, gift-givers, helpers, objects of quest, and false heroes. The most important character type of these seven are heroes since, in general, the plot follows the actions of the hero. According to Propp, the hero of a fairy tale is defined as "that character who either directly suffers from the action of the villain in the complication (the one who senses some kind of lack), or who agrees to liquidate the misfortune or lack of another person" (p. 50). Furthermore, there are two types of heroes: seeker-heroes and victim-heroes. Seeker-heroes have search and rescue as their goal in fairy tales, while victim-heroes are beset by misfortune or assailed by the treachery of a villain. In the final analysis both types of heroes are generally successful in their struggle with the forces of evil. However, there are some tales in which the villain prevails.

Motivation for the action. The action of the tales Propp analyzed may be initiated in either of two basic ways. First, the motivation for the action of the hero may be the result of an act of villainy. In these tales the hero's objective is to pursue the villain and either punish or destroy him. Second, the action of a tale may begin with the realization of a lack or misfortune. The course of this type of story generally involves a series of events which ultimately leads to the liquidation of the misfortune by the hero. Therefore, from this perspective, a tale may be defined as "any development proceeding from villainy or lack, through intermediary functions to marriage, or to other functions employed as a denouement. Terminal functions are at times a reward, a gain, or in general the liquidation of misfortune, an escape from pursuit, etc. Each new act of villainy, each new lack creates a new move" (p. 92). In other words, the impetus for a tale may be realized from within (through lack) or created from without (through villainy). There are, in addition, two alternative ways of leading to villainy. In the first case it is the violation of an interdiction that sets up the villainy (I, V). And in the second case, the hero is deceived by the villain thus facilitating either villainy or a state of insufficiency. (DCT, DCPTN).

Auxiliary elements. Although Propp's functions have received the greatest attention, they represent only one category of elements found in fairy tales. "Functions constitute the basic elements of the tale, those elements upon which the course of the action is built. Along with this there are component parts which although they do not determine the development, are nevertheless very important" (p. 71). In all, there are five types of elements delineated by Propp as components of fairy tales. In addition to functions they include: conjunctive elements, motivations, the forms of appearance of the characters, and attributive elements or accessories. In Propp's words, "These five categories of elements define not only the construction of a tale, but the tale as a whole" (p. 96).

Analytic difficulties. Although Propp maintained that his sample of fairy tales all reduced to a single tale with the same basic pattern of actions (i.e., a basic archetype), more careful analysis of Propp's results suggests that this may not, in fact, be correct. Many of the tales in Propp's corpus contained functions which appeared to occur out of order. While this seems manifestly inconsistent with Propp's statement that the sequence of functions is always identical, he solves the problem by appealing to the notion of transformations. Thus, Propp suggests that in certain tales the order of functions may be at variance with the archetypal sequence as a result of specific transformations which, for example, may place intermediary functions at the beginning of the tale. Taylor (1964) has pointed out that Propp's data forces him to make explanations that are not only difficult to comprehend but also seem to be discordant with his theses. Of particular difficulty for Propp are tales containing the elements designated HI (Struggle, Victory) and MN (Task, Solution). Forty-one tales out of the sample of 100 contain HI alone, 33% contain MN alone, and 30% contain neither HI nor MN. As a result Taylor (1964) maintains that "we are justified in recognizing at least three types, all of them biographies of a hero" (p. 127). Propp himself also points out the difficulties of his system: "It should not be expected that the analysis of a particular text can be executed quickly and easily. . . the execution of a correct analysis of a tale is not always easy" (p. 100). Moreover, it is sometimes "impossible to provide for all the details" (p. 100). Propp also observed that analysis of tales may be complicated by the fact that many tales are "corrupted." In the course of a tale the narrator may lose the thread of the story and thus the terminal functions may not correspond to the initial one. In such cases "the tale is as though out of tune" (p. 110). Propp continues, "We have a phenomena similar to 'disharmony' when the first half does not evoke the usual response, or else replaces it with a response that is completely different and unusual for the tale norm" (p. 110).

Dundes's Analysis of Indian Folktales

Dundes (1964) adopted Propp's system to the study of the folktales of the North American Indians. Following Propp's methodology, Dundes analyzed the folktales in his sample in terms of their basic structural components. In order to emphasize the objective reality of these structural components and distinguish them from other non-structural systems of classification, Dundes termed his basic unit of analysis a motifeme. However, despite the differences in terminology, most of Dundes's motifemes are borrowed directly from Propp's index of function. (Two exceptions are consequence and attempted escape.)

Dyadic interaction. In Dundes's system the primary focus has shifted from single structural elements to pairs of elements or dyads. In studying the folktales of the North American Indians, Dundes found that all tales containa nuclear dyad of something lacking (or villainy) and the liquidation of that lack (or villainy). As tales increase in complexity additional dyads are interposed between lack (or villainy) and lack liquidated (or villainy nullified). Most American Indian tales, therefore, can be reduced to some combination of these dyadic sequences with lack and lack-liquidated or villainy and villainy nullified always being the initial and final terms.

Motifeme sequences. Dundes discovered that the tales of the North American Indians were much less complex than the fairy tales in Propp's corpus. In general, the tales in Dundes's sample progressed from some initial state of disequilibrium to some final state of equilibrium. While the number of motifemes found in these tales appears to be very limited (i.e., only about 16 different motifemes forming 8 dyadic interactive units). These motifemes include: interdiction, violation; deceit, deception; struggle, victory; pursuit, rescue; lack, lack liquidated; villainy, villainy-nullified; task, task accomplished; and consequence, attempted escape. These motifemes occur in different sequences yielding four different structural types. The most elementary structural type is the nuclear two motifeme sequence. These tales consist of only two parts: lack and lack liquidated. These two motifemes may be used as the minimum definition of a particular structural type. In addition, other motifemes may be interposed between lack and lack-liquidated, and these have been called medial motifemes. Dundes found three alternative combinations of medial motifemes in the nuclear two motifeme sequence. These are task (or test), accomplishment; interdiction, violation; and deceit, deception. For example, a typical North American Indian folktale of this type might be composed of the following motifeme sequence:

(7) L + T + series of failures + TA + LL

In these tales if a lack is not present at the beginning of the tale it may be subsequently created by, for example, villainy.

The second structural type of folktale found by Dundes in his sample is the four motifeme sequence: I/V. This type contains four central motifemes. The plot of these tales develops out of an interdiction (either explicit or implicit) which is violated. The violation is followed by some kind of misfortune which serves as a punishment, i.e., is a direct consequence of the violation. These tales are generally of the form:

(8) I + V + C + AE

Some tales may end with the violation, while others continue with an attempted escape (AE), i.e., an attempt to escape the consequences of the earlier violation. Thematically, these tales would appear to be concerned with morality and the consequences of improper behavior (e.g., violating taboos) and thus they frequently end with an explanatory motif (statement of the moral) which functions as a terminal marker. However, the explanatory motif is an optional, non-structural element.

The four motifeme sequence: DCT/DCPTN is very similar to the above sequence and is constructed around an attempt by the villain to deceive the hero followed by the subsequent fulfillment of this deception. This deception is generally followed by the liquidation of a lack and is of the basic form:

(9) L + DCT + DCPTN + LL

And, finally, Dundes observed more complex tales which he categorized under the six motifeme sequence. In these tales, the sequences of the above three structural types combine to form several different types of complex tales. Some of these tales, in fact, contain more than six motifemes. For example:

(10) L + T + TA + LL + I + V + C + AE

Clearly, this example is composed of a combination of the nuclear two tale with an intervening dyad (T, TA) and the four motifeme: I/V type.

Significance. Dundes's analysis of the folktales of the North American Indians is significant for three fundamental reasons. First, this work demonstrates the applicability of a Proppian approach to material other than Russian fairy tales. That is, Propp's system is not merely limited to the material of Russian fairy tales. Second, Dundes's analysis is important because of his emphasis on dyadic interaction of functions. The tales in Dundes's corpus, while structurally less complex than the Russian fairytales, appear to have a better internal balance vis-a-vis dyadic interaction of elements. And, third, Dundes was able to determine several different structural types. If Dundes's work is to be viewed merely as an application of Propp's system then it has the same inherent problems and is vulnerable to the same criticisms. However, if Dundes's analysis is to be taken as a new system or extension of Propp, then it may be criticised because of the limited number of elements available. Yet, despite these apparent shortcomings, Dundes's work demonstrates that a direct application of Propp may neither be possible nor necessary. Different samples may require the addition or deletion of particular elements. In the case of Dundes's sample very few elements were required; however, well-developed narratives may require more.

Modification of the Proppian Approach

Application to Children's Narratives

While Propp's original investigation was limited to Russian fairy tales, Dundes's analysis of Indian folktales indicates that Propp's system of analysis may have broader applications. Indeed, Dundes (1968) suggested the possibility of applying Propp's analysis to a diversity of materials. For example, Dundes stated that a Proppian approach may be used to analyze the structure of folk dances and games, as well as the plots of novels, plays, comic strips, movies, and TV dramas.

Recently, Sutton-Smith (1974) suggested that children's fantasy narratives may be viewed as the concatenation of various action elements in a more or less lawful and predictable way. Children's narratives, like folktales, may be decomposed into an aggregate of structural components. These components, when abstracted from a story, symbolized, and strung together according to the story's chronology, yield the plot or action of the story. Thus, Proppian analysis (i.e., a syntagmatic structural approach) would appear to offer a valuable methodology for investigating the structure of children's fantasy narratives. Once these narratives have been decomposed into their structural components, they may be compared along a number of dimensions. Such an analysis would seem to have great potential for highlighting the differential effects of sex or age on the composition of fantasy narratives. For example, the frequency of occurrence of specific elements, pairs, or groups of elements, as well as the precise order in which they occur would facilitate discovery of the _syntax_ or _rules of composition_ operative for particular sex and age groups. Moreover, such an analysis would provide a method of determining structural complexity. Thus, a Proppian approach to children's fantasy narratives could potentially provide considerable information about the development of narrative competence.

The Need for Modification

Although many of the stories told by children are similar to the fairy tales analyzed by Propp, the majority of children's stories do not easily lend themselves to a direct application of either Propp's or Dundes's system. The fantasy narratives of young children are generally fragmented with inconsistent characterization and ambiguous action. As a result, accurate application of Propp's functions or Dundes's motifemes is difficult at best. Moreover, there is a certain inherent imprecision in Propp's system which substantially reduces its efficacy as an analytic tool when used on material other than fairy tales or simple folktales. This imprecision is largely the result of the generality of many Proppian functions. For example,

Function 9:	Misfortune or Lack made known; the hero is approached with a request or a command; he is allowed to go or he is dispatched
Function 12:	The hero is tested; interrogated; attacked, etc. which prepares the way for his receiving either a magical agent or helper
Function 13:	The hero reacts to the actions of the future donor

Functions such as these while possibly appropriate for the study of fairy tales are much too general to be effective in the analysis of children's narratives. In the case of function 9 six different elements appear to be considered as one function: (1) misfortune made known, (2) insufficiency made known, (3) request addressed to the hero, (4) command addressed to the hero, (5) release of the hero, and

(6) dispatch of the hero. Similarly function 12 contains at least three different elements which are considered to be the same: (1) testing of the hero, (2) interrogation of the hero, and (3) attack on the hero. And, function 13 is vague and ambiguous and might include any number of actions. Therefore, as a consequence of existing problems with Propp's system (i.e., the generality of many functions) and difficulties intrinsic to children's fantasy narratives, it has been necessary to modify Propp's system, redefining and eliminating certain elements as well as adding several new elements. Some changes are primarily a result of differences between the material of children's fantasy narratives and Russian fairy tales. For example, branding is not an important element in children's narratives; although wounding and injuring, similar elements, do occur. Other functions have been reorganized. For example, falling asleep and wounding onself were included by Propp as subcategories of function 7 (deception). The inclusion of these two actions as types of deception seems to be inappropriate. A new element called self-defeat has been created and includes both falling asleep and wounding oneself along with other actions which may result in self-defeat such as clumsiness, foolishness, stupidity, confusion, etc.

Application of Propp's Methodology

Notwithstanding the significance of the results of Propp's brilliant and painstaking analysis, perhaps his most important contribution was his methodology, i.e., his approach to the analysis of narrative forms. While aspects of his system may not be entirely adequate or appropriate for the study of children's fantasy narratives, Propp's methodology provides the means of constructing a more suitable analytic system.

To begin it is first necessary to isolate the basic structural units which regularly occur in a specific sample of narratives. This may be accomplished by decomposing each story into a series of actions or events. Narratives are then compared on the basis of these action elements. Similar action elements are grouped together to form higher order categories of elements. For example, in many of the children's fantasy narratives in our sample there are instances where one character punches, slaps, spanks, clubs, whips, or tags another character. As diverse as these actions are, they may all be grouped together as subcategories of hit which in turn may be viewed as a subcategory of physical attack. Moreover, attack may be considered either as villainous action or counter action (action by the hero) depending upon the character performing the act and its function for the course of the story. Thus, it is possible to construct a hierarchy of action elements by working from very specific actions to increasingly more general categories of behavior. In the example below, the analysis proceeds from (f) to (a). After having first isolated (f) as a structural element of the particular narrative, the elements of the respective superordinate categories are identified (see figure 1).

Furthermore, children's narratives also contain several structural elements in addition to the action components which are similar to the auxiliary elements referred to by Propp. For the most part, these components are standard story conventions such as "once upon a time," "the end," or "they lived happily ever after." These elements may also be isolated, identified, and categorized in the same manner as action elements. Thus, gradually it is possible to construct a complete taxonomy of narrative elements. Once these elements have been isolated, identified, and categorized, it is possible to compare the order of these elements in all the narratives in a given sample, i.e., determine their precise pattern of occurrence. This final comparison enables the formulation of still higher order elements imilar to Propp's 31 functions and facilitates the construction of structural types or theoretical archetypes.

Levels of Analysis

Although we have employed Propp's methodology and to some extent have borrowed his nomenclature, there is one major difference between Propp's system and the one we have derived, and that difference can best be described as a difference in the level of analysis. As was mentioned above, Propp's methodology involves the hierarchical organization of structural components which have first been isolated and identified. Analysis of such a hierarchy may occur on any or all levels of that hierarchy. The initial element of a hierarchy is generally designated a first order element and the nth element of a hierarchy is designated a nth order element. Therefore, analysis may focus on first order elements or nth order elements. In these terms, then, Propp's system may be said to focus on first order elements (i.e., his 31 functions), while our system focuses on second order elements. Put differently, our level of analysis is one degree more specific.

There are several reasons for this difference. First Propp's analysis was limited to one type of folktale, the Russian fairy tale. Our intent is to construct a system with enough flexibility for use with a variety of narrative types. Second, the generality of many of Propp's functions inhibits analytic precision. A more specific level of analysis would help remedy this deficiency. Third, Propp's 31 functions were derived from Russian fairy tales and as a result appear to be imbued with the structural connotations of the fairy tale. That is, Propp's functions appear to carry with them an intrinsic structural bias.* However, the most cogent reason for the difference in level of analysis is that analysis of second-order elements necessarily must precede the derivation of first-order elements. Once the analysis of second-order elements is complete and structural types have been grouped together (on the basis of order of predication), then first-order elements may be generated for each general type; however, it is likely that they will be somewhat different for each type.

P-Units

Like Propp, our analysis focuses primary attention on the actions and events that constitute the plot of a story. However, in order to distinguish our elements from those defined by Propp, our fundamental structural unit has been termed a P-unit (plot unit). As in Propp's system, these elements are generally expressed as verbal nouns thereby indicating action (e.g., attack, escape, violation, rescue, departure, capture, return, etc.). P-units may be either active or passive. While all P-units are scored from the perspective of the central character, active P-units represent action performed by the central character (e.g., departure, return, counterattack, escape, chase, violation, etc.) and passive P-units represent action performed by other characters which affects the central character in some way (warning, interdiction, reward, punishment, attack, etc.).

There are two fundamental types of P-units: primary and secondary.

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* Propp's choice of functions seems to have been prejudiced by his fundamental assumption that "all functions fit into one consecutive story." (p. 25)

Primary P-units are action elements which represent both the motivation for the action or potential action, on one hand, and the resolution on the other. That is, narrative N proceeds from state A to state B, where both A and B represent primary P-units. thus, these elements generally occur in pairs forming dyads. In a sense, they delimit the action of the story. The most common primary P-units occurring in our sample are similar to those found by Dundes (1964) in the tales of the North American Indians. They are lack (state of insufficiency, excess, or misfortune), lack-liquidated (the removal of the previous lack), villainy (attack or potential attack), and villainy-nullified. In addition, some stories have negative resolutions in which the lack is not liquidated or the villainy is not successfully nullified.

Secondary P-units are elements which represent action or potential action that is preparatory, intermediate, or consequential to the establishment of the boundaries of the story. The most important function of these elements is to mediate the action established in the initial primary P-unit and lead the action (plot) of the story to the final primary P-unit. Thus, secondary P-units serve as transition elements between state A and state B, the beginning and the ending of the plot. Since at this point in our analysis only six primary P-units have been identified, nearly all of our P-units are secondary. Thus far, it has been possible to identify over 80 secondary P-units which have been grouped into 18 categories. These superordinate categories are not meant to be structural elements themselves, but are used merely as a means of organizing the inventory of P-units. Unlike Propp, particular elements have not been limited to specific characters, although some elements are generally only used for certain characters. Many of our elements may be performed by either the antagonists or protagonists. In general, then, characters are divided into two broad groups: (1) the central character and his allies (protagonists) and (2) all those who serve as the opposition (antagonists), i.e., heroes and villains. Although the characters in our sample of children's narratives are generally animals, monsters, superheroes, etc., in some cases natural objects or natural forces may function as characters. As a result of the combination of P-units and characters performing them, the potential range of structural elements is effectively doubled yielding well over 150 elements.

Elements preceding disequilibrium. A number of elements may actually lay the groundwork for the occurrence of some type of danger or misfortune. That is, function as preparatory elements for some intrinsic or extrinsic conflict. For example, an element denoting a Threatening Situation or a Warning of Impending Danger frequently will precede an Attack by an antagonist. For example,

(11) Sally walked into the pet shop and saw three alligators on the floor (TS). And before she could run away one of them grabbed her foot in his mouth (A).

TS + A

Or, the Violation of an implicit or explicit Interdiction may result in a character being beset by some unforseen calamity. For example,

(12) The little rabbit was told not to go into the forest alone (I). One day he did (V) and he was eaten by the big bad wolf (A).

I + V + A

Occasionally, the adverse consequences of a violation of an interdiction are avoided by Compliance.

In many of the narratives in our sample the characters often facilitate the Escape or Attack of an opponent through their own clumsiness or stupidity, or make themselves sick by eating too much. In such cases the adversity is precipitated by the character himself, and is therefore regarded as a form of Self-Defeat. For example,

> (13) An elephant thought a coconut tree was a lion because it had furry stuff all over it (SD) so he ate it. What fun it was. He went home (R). He went to sleep. He blew up (Misfortune).
>
> SD + R + M

Disequilibrium elements: lack. Several elements are used in children's narratives to serve as the impetus for action when villainous action is mot used. These elements are classified under the general rubric of lacks; however, only one of these elements literally refers to the kind of deprivation implied by the work "lack," and that element is termed State of Insufficiency or simply Insufficiency. Other elements included in this category are designated Excess, Misfortune, Obstacle, Task and Test. In many of the stories told by girls the action of the story centers around the resolution of one or more of these "lacks." One of the most common forms of Insufficiency is a state of wishfulness that the character attempts to fulfill. For example,

> (14) One day I saw a rabbit and it was furry, very furry. It was so furry that I wanted to take it home (IN). And then I saw cage and I put the rabbit in the cage (CPT) and ran home (INL, RTN).
>
> IN + CPT + INL + RTN

Disequilibrium elements: attack. In addition to the elements discussed above, the action of a story may revolve around a conflict created as a result of some kind of villainous action. Five elements are included in this category: Preparation for Attack, Attack (a) Attack (b), Chase, and Stalk. The two Attack elements are differentiated on the basis of elements which involve bodily harm or injury (e.g., wound, kill, hit, grab, shoot, strangle) and those which do not involve bodily harm (e.g., theft, abduction, property damage). The element Preparation for Attack is used to represent an action directly preparatory to an attack. Such actions generally include the acquisition of weapons, planning or strategy formulation, or merely the decision to attack. The elements Chase and Stalk both represent types of pursuit. Chase used in the conventional sense of "running after" and Stalk implies a more subtle type of pursuit, such as, "sneaking up."

Counteraction. These P-units are identical to those listed above as attack elements with the exception of the addition of the element Struggle. These attack elements represent the positive counterparts to the actions of the antagonists, i.e., they represent the response of the protagonist and/or his allies to the negative actions of the antagonists. The element Struggle is included here because it generally only occurs when the protagonist resists or responds to the activities of the antagonist.

For example,

(15) One day the bionic man and Jamie Summers were walking in the woods. Big Foot jumped out of a tree and hit the bionic man over the head with a rock (Aa) and kidnapped Jamie Summers (Ab, IN). The bionic man thought of a way to capture Big Foot and rescue Jamie (PCA). He got a big steel net and threw it over Big Foot (CPT) but he got out (E). The bionic man ran after him (CHS). They fought for an hour throwing rocks and trees at each other (S) and finally the bionic man killed Big Foot (V). Then he and Jamie went home to Washington (INL, R) and they were married (RWD). The end.

Aa + Ab + IN + PCA + CPT + E + CHS + VCT + INL + R + RWD

Translocations. Most narratives involve more than one location. For the most part children's stories begin in one location, the main actions occurs in another location, and then the story ends with a return to the original location. The three most common P-units reflecting these location chagnes are: Arrival, Departure, and Return. Frequently, the initial Departure is omitted being replaced by the Initial Situation, or the Initial Situation preuspposes an implied departure. For example, in the above illustration (15) the Initial Situation has the two protagonists "walking in the woods." Therefore, the story starts at a specific point after a previous departure. In such cases, the element Departure is not used. If, however, a departure is clearly and explicitly stated as the first element in a narrative, then, the element Departure is used in place of Initial Situation.

Transformations. Although transformations, in particular Magical Transformations, do not occur as frequently in children's narratives as they do in fairy tales, they are still an important element. Magical Transformations not only involve the transformation of animals, people, and things to new physical forms but they may also involve, for example, personality changes. That is, occasionally the antagonist may be transformed into a protagonist or vice versa. These changes are represented by the elements Transformation of the Hero and Transformation of the Villain and include the traditional notion of transfiguration (e.g., new clothes or a new physical appearance.)

Fortuitous happening. The fantasy narratives of children are replete with lucky or fortuitous happenings. The two most common types of fortuitous happenings are the inadvertent or accidental discovery of something which positively affects the character (designated Fortuitous Discovery) and the receipt of an unexpected or undeserved gift (designated Unexpected Gift). Typical Fortuitous Discoveries might include the discovery of a secret passageway, a magical agent, learning of an opponent's weaknesses, the discovery of hidden trasure, etc. The important aspect of these events is that they are the result of chance and not the result, for example, of an active or intentional search. Similarly, the element Unexpected Gift should be distinguished from the element Reward which is earned, i.e., the consequence of some previous behavior. In this context the gift is totally fortuitous and not in any way a prize or a reward.

Reward and punishment. In contrast to the above category are circumstances or things which are the result of previous behavior and function as either a punishment or a reward. The element Punishment includes anything from being sent to bed without any supper to being sent to jail. The element Reward, on the other hand, includes money or riches, prizes, marriage, medals, or other forms of status. Negative events following the violation of an interdiction are not necessarily considered punishments, e.g., the attack of an antagonist. The distinctive feature of punishments and rewards is their formal nature. Moreover, punishment is generally reserved for antagonists and rewards for protagonists. However, just as characters may receive an unearned reward, they may also receive an unearned (i.e., unjust) punishment.

Reconnaissance. There are three modes of acquiring information which typically occur in the stories in our sample. Information may be acquired through Observation, Interrogation, and Search. Reconnaissance elements may be used to represent the action of either antagonists or protagonists. The elements Acquisition of Information and Failure to Acquire Information are used to represent the resolution of the three reconnaissance elements, either positively or negatively. In addition, the element Search is used to designate attempts to obtain information about the location of a particular person, place or thing.

Notification. The passage of information from character to character may also occur through direct notification. That is, one character may simply provide important information in the form of an anoucement. These announcements may be verbal or symbolic, direct or indirect. For example, the occurrence of an attack, counterattack, misfortune, state of insufficiency, violation, escape, or rescue may be made known through a verbal announcement or through crying, it may be revealed in a dream or it may be discovered. Frequently, attacks and lacks are made known through the crying of one character in the stories of our sample. Escape, rescue, and violation, however, are generally discovered.

Alliance. Although the narratives of young children tend to involve a conflict between, for example, a central character and one villain, the narratives of older children are somewhat more complex. That is, the stories of older children may involve the interactions of several additional characters who function as helpers or allies. In addition to P-units representing Alliance Formation and Alliance Disintegration, several other elements are related to bringing additional characters into the story. For example, potential allies may make a Decision to Help or an Offer of Assistance which is chronicled in the narrative. However, these elements are often not explicitly stated in the narrative. Moreover, if a character's assistance is requested by another character, the potential ally may refuse (designated Refusal of Assistance), or the potential ally may offer assistance and have his assistance refused. In any case, these alliance elements are particularly significant in adventure stories and occur frequently in stories involving rescues.

Defense. Of all the various elements observed in children's narratives, P-units relating to defense appear to be among the least common. Two elements have been identified: an element indicating defensive actions (e.g., blocking, ducking, or dodging) and elements indicating the preparation of a defense (e.g., erecting barriers, posting guards, formulating defensive strategies, etc.). There may be two reasons for the paucity of defensive elements in the children's fantasy narratives in our sample. First, most of our stories primarily employ offensive elements, for example, the villain attacks the hero and then the hero counterattacks the villain. The emphasis clearly seems to be on offensive action. Second, the actions which might ordinarily be termed defensive such as hiding or running away have been categorized as escape elements. Thus, it is possible that the frequency of defensive elements may be underestimated.

Escape. Several common elements found in the fantasy narratives of children of all ages involve the act of escape. There appear to be three distinct types of escape, i.e., escape occasioned by different situations. These are Escape from Threatening Situation (e.g., from the presence of dangerous animals or dreadful creatures), Escape from Attack, and Escape from Captivity. The first two types of escape may be achieved in similar ways (e.g., running, swimming, flying, hiding, climbing, etc.). However, escapes from captivity are generally achieved by breaking out, digging out, climbing out, solving a riddle, or hypnotizing the guards. Yet, not all escapes are successful Therefore, the fourth escape element has been designated Attempted Escape. This element is used whenever the escape attempt is unsuccessful.

Release. Another way to avoid danger or imprisonment is through the intervention of another character. The assistance may be from either an ally or from an adversary; however, the significant point is that the nullification of the danger or imprisonment must be extrinsic to the character involved. The most common of these elements is Rescue. Other elements include being released from captivity by the captors (designated Release) and having the threat of impending danger withdrawn (designated Threat Withdrawn).

Resuscitation and recovery. Several of the children's narratives in our sample had instances in which a character who had been killed or knocked unconscious was revived. Elements to represent these events have been designated Revival from Death and Revival from Unconsciousness. Similarly, characters who are sick or are injured often are healed. These elements have been designated Recovery from Illness and Recovery from Injury.

Resolution: lack. Logically, there are two possible resolutions for each of the elements included as lacks. They may either be resolved positively or negatively. That is, the lacks may either be liquidated or not be liquidated. Therefore, the elements Insufficiency, Excess, and Misfortune may be either liquidated or not liquidated. Obstacles may be overcome or not overcome. And, tasks may be either successfully accomplished or not accomplished.

Resolutions: villainy. Like the resoltuions above, the resolution of villainous action (attack) may be either positive or negative, successfully nullified or not nullified. While there are a great number of types of attacks, there appear to be only four general resolutions. Villainous action generally results in some counteraction by the protagonists which in turn results in either an immediate Capture (e.g., arrest) or Struggle. The outcome of this struggle may be either Victory or Defeat for the protagonist. Moreover, an Attempted Capture might prove unsuccessful and thus the villainous action would not be nullified or overcome.

Stylistic Elements

Although the major focus of our analysis is on the actions and events which constitute the plot of a story and our basic unit of analysis is the P-unit, we have included 3 additional types of elements in our analysis. These three types of stylistic elements are specifications, elaborations, and markers. The elements included in these three categories symbolize the presence of specific literary techniques which are used to enhance the coherence and interest of children's fantasy narratives.

Specifications. The first scene or initial situation of children's narratives generally functions as an introduction to the major characters, as well as providing some information about the location where the action is occurring and background information about the circumstances of past, present, and future action. In all there are four structural elements which introduce the characters and provide preparatory information about the conflict of the story. These elements are: Delineation of Character, Specification of Time, Specification of Location, and Background Information. Any or all of these elements may appear in children's fantasy narratives. For example,

(16) Once upon a time (IM) there was a little girl named Sally and her father (DC). They had a duck pond (BI).

Thus, the story contains an Introductory Marker followed by the introduction of the central character and her father (Delineation of Character) and some general information about them (Background Information). These introductory devices help develop the characters, i.e., facilitate characterization, and lay the groundwork for the actual plot of the story.

Elaborations. Several devices are frequently used by children to refine and improve their narratives beyond the skeleton of a well-organized and well-developed plot. These devices may be used to either expand or embellish on their basic story. Two of the most common of these devices are Descriptions and Dialogue. While the stories of younger children do not typically employ these devices, they become more common in the stories of older children. The length of a narrative or a specific action sequence within a narrative may be expanded through the use of Repetition. Particular combinations of elements may be doubled or tripled with all but the last combination involving failures thus increasing suspense. That is, the successful resolution of some act may be preceded by a series of failures. For example, a series of defeats may precede the final victory, or, a series of escapes (by the villain) may precede the final capture. The following story segment illustrates this technique:

(17) . . . a girl goes to the store to buy a pet but doesn't have enough money (Insufficiency, Insufficiency Not Liquidated). She goes back to the store, but forgets that the store is closed (Self-Defeat). Finally, she goes to the store and buys the pet (Insufficiency Liquidated)

Thus, in this case, the final success if preceded by two failures.

The fourth kind of technique in this category is the Statement of the Moral. Occasionally children's stories end with either a statement about the moral of the story or some type of explanation of the events of the narrative. These elements are generally employed in the concluding section of the narrative and function as a kind of simple epilogue.

Markers. Because of the confusion and ambiguity which may result when several complex action sequences occur within the same narrative, several conventions are frequently used to mark transitions between sequences as well as to indicate the beginning and ending of a narrative. The most common conventions occurring in our sample of fantasy narratives and the earliest to emerge in the narratives of young children are Introductory and Terminal markers. The Introductory markers found in our sample include: once upon a time, once, one day, one night, etc. On the other hand, Terminal markers include: the end, they lived happily every after, that's all, and that's the end. In addition, other markers indicate the interruption of one action sequence by a second sequence and then a return to the initial sequence. The Parallel Action Marker is used to indicate the temporal simultaneity of two sequences of events. Unless specifically indicated, the fundamental assumption in composing and reading a narrative is that of temporal progression. Thus, if event X is present before event Y in the text of a narrative it is assumed that X is the temporal antecedent of Y. That is, spatial progression is taken to indicate temporal progression. Therefore, if X and Y are to represent simultaneous (i.e., parallel) action, then some kind of marker is required to alert the reader of the violation of the basic assumption of temporal (spatial) progression. A common Parallel Action Marker is "meanwhile" (as in "meanwhile, back at the ranch"). Moreover, once this departure from the implicit rule of temporal progression occurs it is necessary to return to the main action and the natural progression of the story. This may be accomplished by merging the two sequences at the appropriate place. The return to the main action (i.e., the action of the central character and/or his allies) is represented by what we have termed a Convergence Marker (e.g., then, just then). For example,

(18) . . . They jumped into their Rolls Royce and zoomed to the war office.

Meanwhile in the war office some crooks were taking it over. They tied up all the executives and staffs of the war office and hid them in the basement. They changed their clothes with the executives and went to work.

Just then Mrs. H got out of the car. She ran in the door and up the stairs. When she got to the war office the crooks had just finished their plan. . .

In this example, the action of the first section is interrupted by that of the second section. The "meanwhile" indicates parallel action, action occurring simultaneously with the trip to the war office. The Convergence Marker indicates the end of the parallel action sequence and the return to the main action sequence.

Another technique frequently used to rearrange the temporal order of the narrative is the Flashback which interrupts a sequence of events occurring in the present and shifts to the past. A Flashback Marker is used to indicate such a time shift. It is difficult to isolate a particular word or phrase in the text which functions as the Flasback Marker, but a standard technique is to have once character (a Narrator) facilitate the time shift by dreaming or remembering. Both parallel action and the flashback are commonly used in the film medium where conventions have been adopted to alert the audience of the shift in the time frame. In fiom parallel action is accomplished by intercutting from one character or group of characters to another. A standard flashback convention is the use of a dissolve or wipe to introduce and terminate the flashback sequence.

In addition to the markers discussed above, there are two other markers that may be used; however, these markers are not always a natural part of the narrative text, but are used to facilitate analysis. The first is the Translocation Marker which is used to indicate location changes. For example, the action may be taking place in the central character's home and then suddenly without any explanation or indication the story may shift to the wilds of Africa. The second marker of this type is the Character Substitution Marker which indicates replacement of one character by another. This frequently occurs in the narratives of young children who seem to be unable to maintain one main character throughout the story. Within the context of this analysis, the use of multiple "main" characters is ignored and they are regarded as one, i.e., they all function as one character. The Character Substitution Marker is used, therefore, to indicate that the new character is being substituted for the old one.

Dummy Elements. For purposes of added clarity and precision, whenever a necessary element is missing a "dummy" element is used in its place. The criterion for using this element is as follows: the absence of a particular element creates reader confusion and causes analytic ambiguities. For example, if a Parallel Action Marker is missing and this absence creates analytic confusion a dummy Parallel Action Marker would be used where the marker would normally occur. As was mentioned above, this is done solely for the purpose of eliminating confusion and increasing analytic precision. All such "dummy" elements are indicated by the presence of an X preceding the code of the element they are representing.

The Development of Narrative Competence

An Equilibrium Model of the Narrative

According to Propp a tale may defined as "any development proceeding from villainy or lack, through intermediary functions to marriage or to other functions employed as a denouement" (p. 92). A somewhat more general description of a narrative may be stated in the form of an equilibrium model. From this perspective, a narrative may be conceived as the movement from disequilibrium to equilibrium through a process of equilibration. That is, narrative N proceeds from state A to state B with intermediate events a through z representing the process of equilibration. Thus, the course of action progresses from some initial state of disequilibrium to some final state of equilibrium. In addition, the movement from state A to state B may contain several minor equilibrations which may form subplots. The example below provides an illustration of the equilibrium model of the narrative. The upper case letters represent the two poles or boundaries of the story, and the lower case letters represent various intermediate events.

(19) One night while the Six Million Dollar Man was sleeping Spiderman stole his bionic arm (A). He woke up and saw his arm was gone (c) so he called the Bionic Woman for help (d). They looked for Spiderman (s) and found out he was hiding on Walton's mountain (f). They flew there in a helicopter (t), disguised themselves as trees (m) and snuck up on Spiderman (n) and the Six Million Dollar Man stole back his bionic arm (B).

$$A + c + d + s + f + t + m + n + B$$

Therefore, in this case, the action of the story begins with a state of disequilbrium created by the theft of the Six Million Dollar Man's bionic arm (A). The action of the story then proceeds to (B) the restoration of equilibrium when the Six Million Dollar Man gets his bionic arm back. The initial state of disequilibrium is eqiulibrated through events c, d, s, f, t, m, and n.

While the movement of all narratives is toward a final state of equilibrium (i.e., a positive ending), this is not always achieved. Some narratives have negative resolutions where the central character for example, fails to overcome the villain or recover some stolen property. However, despite the fact that some endings are negative, they may still be regarded as equilibrium states since they are final states of balance between opposing forces or actions. In other words, in this context a resolution, whether positive or negative, is considered as an equilibrium state.

Levels of Structural Complexity

From an organismic point of view, development "proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation, and hierarchic integration" (Werner, 1957, p. 126). That is, development is viewed as a unitary progression toward increasingly complex hierarchical organization. Psycholinguistic studies offer evidence of the validity of Werner's orthogenic principle at least in terms of the relative complexity of certain linguistic structures and the developmental order of acquisition. For example, children progress from (1) a series of single word utterances to (2) a series of simple sentences to (3) the coordination and conjunction of simple sentences to (4) embedded sentences (Brown, 1973).

If it were to be assumed that cognitive development and the development of semiotic processes (e.g., language) proceed in a manner consonant with Werner's orthogenic principle, then we might expect narrative development to proceed from a state of relative globality and lack of differentiation to increased hierarchical organization and structural complexity. This would suggest that children's narratives progress developmentally from (1) a more or less random concatenation of elements, i.e., no structure, to (2) a gradual articulation of primitive structures, to (3) increased differentiation and coordination of structures, to (4) the hierarchical organization and subordination of elementary structures.

Viewing narratives from the perspective of an equilibrium model, it is possible to derive six basic structural types. Following general developmental principles and implications from psycholinguistic research, these structural types may be ordered into a jupothetical developmental sequence forming levels of structural complexity. In each case the basic unit of analysis is an action or event and the basic structure is the dyad. Increasing structural complexity has been conceived in terms of the articulation and hierarchical organization of nuclear dyads as well as the integration of intermediary elements between the initial and final terms of the nuclear dyad (disequilibrium and equilibrium).

Level 1. Narratives at this level lack coherence and structural unity. Prior to this children's narratives are the result of juxtaposing several proper nouns with only the implication of action. However, while narratives at this level do contain a series of events, they are merely the result of a more or less random concatenation.

Example: Pirates found a treasure full of diamonds (Fortuitous Discovery.) A police boat saw the pirates (Reconnaissance Fulfilled). The pirates won (Victory).

Level 2. Narratives at this level are short but structurally symmetrical. They are characterized by the presence of one nuclear dyad. Although these narratives may have action elements either before (preparatory) or after (consequential) the nuclear dyad, no elements may occur between the initial and final terms of the dyad.

Example: An astronaut went into space (Departure). He was attacked by a monster (Villany). The astronaut got in his spaceship and flew away (Villany Nullified).

Insert Figure 1 about here

Level 3. This level is characterized by the internal expansion of the narrative through the use of intermediate action elements. Narratives at this level are differentiated from those of Level 1 by the elaboration of action through the interposing of elements between the initial and final terms of the nuclear dyad.

Example: Once there was a little girl. She went walking in the woods ~~(Departure) and~~ soon it was dark. It was so dark she couldn't find her way back home (Lack). She cried and cried (Lack Made Known). An owl heard her and asked if she was lost (Interrogation). She said yes (Acquisition of Information). The owl said he would help her find her way home (Alliance). He flew up in the air and looked around (Reconnaissance). After finding out which way to go (Reconnaissance Fulfilled), he said, "Okay follow me." Then he led the girl out of the woods and showed her the way home (Lack-liquidated). When she got back home she was so happy (Return). She gave the friendly owl a kiss and thanked him (Reward), and told her parents she would never go walking in the woods by herself again. The end.

Level 4. These narratives are characterized by the conjunction of two or more action sequences (primitive episodes). That is, these stories are the result of the concatenation of elementary dyadic structures. Moreover, there is the loss of the intervening elements of level 3 and a regression to level 2 constructions, while there is an attempt to expand the boundaries of the tale through repetition. Increases along one dimension result in a decrease along another dimension.

Example: There was this friendly lion in Asia (Initial Situation), but he was captured (Villainy) and brought to a zoo. Then the lion escaped (Villainy Nullified). He was walking down the road (Initial Situation) and a truck tried to run him over (Villainy), but he managed to get out of the way (Villainy Nullified). He began to get hungry (Lack) so he ate a rabbit (Lack-liquidated). The end.

Level 5. This level is characterized by the conjunction and coordination of elementary dyadic structures as well as the internal expansion of intermediate action elements. Narratives at this level therefore, are composed of two or more well-developed episodes.

Example: Once Batman and Robin were in a haunted house (Initial Situation). Robin fell through a trap door in the floor and landed in an underground river (Lack). Robin pressed his magic watch to signal Batman for help (Lack Made Known). Batman heard the signal and looked all over the house for Robin (Search). Then he saw the trap door (Find). He lowered a rope from his Bat-belt and pulled Robin out of the water (Lack-liquidated). Then they heard a scream (Deception). They thought it was a girl, but it was Spiderman (Deception Fulfilled). They looked around and the screams seemed to come from the attic. Batman and Robin ran up to the attic to save the girl but Spiderman was hiding behind the door waiting for them (Threatening Situation). When they came in Spiderman threw an extra strong spider-net over them (Villainy). They tried to get out but they couldn't (Attempted Escape). "I've got you now," he said. "I'm going to kill you, and Wonderwoman and I are going to take your Batmobile and live in your Bat Cave" (Threat). But Batman told him that he had a special key for the Batmobile and Bat Cave (Deception). And when Spiderman came over to get the key (Deception Fulfilled) Batman hit him right in the face and knocked him down (Counterattack). Then Batman and Robin got out of the net and beat up Spiderman (Struggle, Victory), and then put him in jail (Villainy Nullified) so he wouldn't both them anymore. The end.

Level 6. This level is characterized by the single embedding of one dyadic structure within another, i.e., the subordination and hierarchical organization of nuclear dyads. The main action of the narratives is interrupted by a subsequence of action. In other words, this is the beginning of the use of subplots.

Example: A man named Mr. Dirt lived in the country all by himself and owns a farm (Initial Situation). One calf got away and went into the woods and headed for the mountains (Lack). So Mr. Dirt went up the mountain after the calf (Departure, Pursuit). On the way a bear came after Mr. Dirt (Villainy). He ran up a tree (Escape) and the bear climbed up the tree after him (Pursuit). Mr. Dirt threw his ax at the bear (Counterattack) and hit the bear in the head. Blood poured out of his head (Wound) and the bear fell down and died (Villainy Nullified). A few minutes later the calf ran over to Mr. Dirt (Find) and they went back to the farm (Return, Lack-liquidated).

Level 7. This level is similar to level 6, but is characterized by the multiple embedding of dyadic structures. The main action sequence is interrupted by two or more subsequences. There is the subordination of plots within plots.

Example: Once upon a time there was a little fish named Josh (Initial Situation) and he was going to a fish fair (Departure) and there were fishers over the fish fair (Threatening Situation) and the fishermen caught everyone including Josh (Villainy). Then they put all the fish in the fishers hole (Lack) and there were sharks and sting rays (Threatening Situation) and a sting ray was going after Josh (Villainy) and then a shark chased the sting ray because he wanted to eat the sting ray (Fortuitous Occurence). So the sting ray stopped chasing Josh (Villainy Nullified) and ran away from the shark. So the shark and the sting ray got into a big fight. But then another shark was going after Josh (Villainy), but then instead the shark gobbled up his mother (Josh's mother), and Josh's dad, and Josh's sister (Fortuitous Occurence). And then he left (Villainy Nullified). And then the boat was sailing and sailing and sailing. There was a big storm that night. And it hit against the rocks and made a big hole in the fishes hole (Fortuitous Occurence) and Josh escaped (Lack-liquidated) and went back to his house (Return) and he stayed there until he was big.

Structural Development

In a recent study designed to test the validity of our hypothetical levels of structural complexity, the fantasy narratives of 80 children (one story per child) were analyzed and scored for their structural complexity (Botvin & Sutton-Smith, 1975). The children ranged in age from 3 to 12. The results indicated that structural complexity increases with age and that narrative length (measured in action elements) is a function of structural complexity. In general the order of acquisition of narrative structures appears to be similar to that of analogous linguistic structures. That is, there are isomorphisms between linguistic and narrative development with regard to structural complexity.

Insert Table 1 about here

The narratives of children under five appear to be the result of the chaining together or concatenation of a series of single narrative events. These narratives lack coherence and the events are not organized into a structural whole. Around the age of five primitive structures emerge. The actions and events of the narratives are organized into a whole and move from some initial state A to some final state B. Children around the age of six begin to elaborate and expand on narratives constructed around elementary dyadic structures. Rather than a direct movement from a state of disequilibrium to a final state of equilibrium the action is mediated by various intermediate events. Around the ages of 7 and 8 children learn to conjoin a series of action sequences to form episodes. Embedded structures do not appear until the ages of nine and ten. At this age children learn to compose a narrative with a main action sequence interrupted by one or more subordinate ones. This is the beginning of subplotting.

Toward a Generative Grammar of Narrative

The narrative may be divided into six discrete parts: the introduction, the preparation, the complication, the development, the resolution, and the conclusion. Only certain permissible elements may occur in each of these six parts. For the most part, the introduction and the conclusion only include formal elements (conventions). The introduction may include an Introductory Marker and any or all of the elements in the category of specifications (Delineation of Character, Specification of Time, Specifications of Location, and Background Information). The conclusion, on the other hand, may contain a translocation element (usually Return), a consequence (Reward or Punishment), an epilogue, and a Terminal Marker. The preparation contains a series of events that lead up to the state of disequilibrium (either lack or villainous action). Common preparatory elements might include interdiction, violation, deception, threatening situation, warning, or self-defeat. The complication is the section in which the conflict first arises creating the initial imbalance or disequilibrium. This may be the result of a lack or villainous action. Thus, any of these elements are permissible. Moreover, a notification element may be used in conjunction with either lack or villainy elements. The use of notification (e.g., attack made known) generally implies the presence of a development, serving as a natural transition. The development is in reality the "plot" of the narrative since this is where most of the action generally occurs in well-developed narratives. Furthermore, if a narrative has one or more subplots they always occur in the development section. Common types of elements included in this section are alliance, translocation, counteraction, and reconnaissance. Finally, the resolution includes elements such as escape, recovery, defense, release, resolution of lacks, and resolution of villainous action. The resolution frequently may be satisfied with only one element.

A grammar is generally regarded as a system of principles and rules of permissible relations between elements. As such, it is a statement about structure. A narrative grammar, therefore, should specify the various combinatorial relations between narrative elements, i.e., the rules of composition. If such a grammar were transformational such as Chomsky's (1957) generative transformational grammar, then an infinite number of "grammatical" narratives could be produced using a limited number or rules. Without reviewing Chomsky's linguistic theory at this time, we would merely like to explore the possibility of applying his model to children's fantasy narratives. Following the "rules" we have suggested above with regard to the parts of the narrative we have constructed a tentative model of a narrative grammar similar to Chomsky's generative transformational grammar. Below we will present 28 Rules of Narrative Grammar and provide an example of its application. Figure 4 presents a tree diagram of a simple narrative, illustrating its

---

Insert Figure 4 about here

---

derivation using our Narrative Grammar Rules. Just as Chomsky's grammar has lexical items as terminal elements, our derivation has P-units (our lexical elements) as terminal elements. The use of some elements is obligatory in our grammar, while the use of others is optional. All elements not inclosed by parenthesesare obligatory. If several elements are inclosed by single parentheses, then the use of at least one of those elements is obligatory. The use of double parentheses indicates optional elements. Appendix II contains a list of all our narrative elements as well as their abbreviations.

Rules of Narrative Grammar

1. N Disequilibrium + Equilibrium
2. D Introduction + Preparation + Complication
3. E Development + Resolution + Conclusion
4. I Marker + Specification
5. P (IS, TL, EPD)
6. C (L, VA) + ((NTCN))
7. DVLP CA + ((ALL, TL, FH, RCN))
8. RSLTN (RL, RVA, ESCP, DFNS, RCVR)
9. CNCLN ((TL, CNSQNC, EPLG)) + M
10. M (IM, TM, PAM, FM, CM, TLM)
11. SP (DC, ST, SL, BI)
12. TL (ARR, DPT, RTN, MTL, TL)
13. IS (STTC, DNMC)
14. EPD (TS, WID, TH, IN, VL, AD, DCP)
15. L (SI, EX, MS, OB, TK)
16. VA (PA, AB, AP, CHS, STK)
17. NTCN (MMK, AMK, CAMK, EMK, RMK, VMK, NDPT, SIMK)
18. CA (PCA, CAB, CAP, STR, CHS, STK)
19. ALL (DH, OA, AF, RA, BA)
20. FH (FD, RG, TW)
21. RCN (OB, INT, SRCH, AI, FAI)
22. RL (SIL, SINL, EXL, EXNL, ML, MNL, OBO, OBNO, TA, TNA)
23. RSVA (CPT, DFT, VCT, ACPT, RSC, RLS, TW)
24. ESCP (ETS, EA, ECA, ECPT, AE)
25. DFNS (PDF, DFND)
26. RCVR (RD, RV, RIL, RIN)
27. CNSQN (PNSH, RWD)
28. EPLG (SM, EM)

These rules are recursive. That is, they may be applied over and over again until all structural constituents are in their terminal form. This is particularly important for narratives with subplots where one narrative is embedded within another. Below is a sample derivation of an elementary narrative (see Figure 4). Even though this narrative is very simple (level 3) the derivation is rather complex. The derivations of more sophisticated narratives would clearly be considerably more complicated and somewhat time consuming.

(20) Mickey Mouse's dog went on a ship (DC, SL). The boat floats away (DPT). The captain went to sleep (SD). Dog barked and woke up (WID) and the pirates got the gold (AP). The dog pulled the pirates' pants (CA). Then a big light came on the boat (RSC) and they floated back to the harbor with Mickey Mouse (RTN).

Steps	Derivation	Rules Used
1.	D + E	(1)
2.	INTRO + PREP + COMP + E	(2)
3.	INTRO + PREP + COMP + DVLP + RSLTN + CNCLSN	(3)
4.	M + SP + PREP + COMP + DVLP + RSLTN + CNCLSN	(4)
5.	M + SP + TL + EPD + COMP + DVLP + RSLTN + CNCLSN	(5)
6.	M + SP + TL + EPD + VA + DVLP + RSLTN + CNCLSN	(6)

7. M + SP + TL + EPD + VA + CA + RSLTN + CNCLSN (7)
8. M + SP + T: + EPD + VA + CA + RVA + CNCLSN (8)
9. M + SP + TL + EPD + VA + CA + RVA + TL + M (9)
10. X + SP + TL + EPD + VA + CA + RVA + TL + M (10)
11. X + DC + SL + TL + EPD + VA+ CA + RVA + TL + M (11)
12. X + DC + SL + DPT + EPD + VA + CA + RVA + TL + M (12)
13. X + DC + SL + DPT + SD + WID + VA + CA + RVA + TL + M (14)
14. X + DC + SL + DPT + SD + WID + AP + CA + RVA + TL + M (16)
15. X + DC + SL + DPT + SD + WID + AP + CAB + RVA + TL + M (18)
16. X + DC + SL + DPT + SD + WID + AP + CAB + RS + TL + M (23)
17. X + DC + SL + DPT + SD + WID + AP + CAB + RS + RTN + M (12)
18. X + DC + SL + DPT + SD + WID + AP + CAB + RS + RTN + X (10)

Using the Rules of Narrative Grammar we have suggested on the previous page it is possible to derive the sequence of P-units that represents the story given in example (20) above. The derivation proceeds from left to right. Each step in the process rewrites the previous symbol string according to one rewrite rule. Only one rewrite rule is applied at a time. Thus, starting with rule 1 which states that N (narrative) is rewritten as D (disequilibrium) and E (equilibrium) and applying the appropriate rules for each succeeding step until a terminal string is reached, any narrative can theoretically be derived. The X is used to fill the slot created by the absence of both the Introductory and Terminal Markers. That is, the X is used to indicate that an obligatory element is missing. In addition to the rewrite rules (Narrative Grammar Rules) a generative transformational grammar would require rules to account for deviations in the order of elements or sequences within the narrative. In other words, if elements or a sequence of elements normally occurring toward the end of a narrative appeared near the beginning, this would have to be accounted for by one or more transformational rules. The sample narrative was uncomplicated in this respect since there were no violations of the narrative's chronology. Therefore, transformational rules would be required for any alteration of the narratives natural temporal progression. Flashbacks, flashforwards, and parallel action are examples of techniques commonly used in narrative which would require transformational rules. Moreover, transformations may be necessary to redefine permissible relations of elements of different narrative genres. For example, a transformational rule may be necessary to account for the reversals and absurd juxtapositions used in humorous narratives.

Conclusion

Currently, little is known of the process through which children develop the requisite skill to construct a well-organized and coherent narrative. If children's fantasy narratives are to be viewed from a cognitive-developmental perspective, then it will be necessary to develop a new analytic technology. The content-oriented approaches of earlier psychoanalytic studies of children's fantasy narrative appear to be neither methodologically adequate nor logically appropriate for the study of narrative development. The syntagmatic approaches of Propp (1928) and Dundes (1964) are models of the kind of analysis that would seem to offer a potential alternative to the approaches of previous research. In this paper we have explored these models; however, as a result of specific analytic difficulties inherent in each of these two systems and the nature of our narrative material we have attempted to construct our own syntagmatic system. While the ideas expressed in this paper are still developing and much of the work presented is preliminary, the syntagmatic approach appears to be a valuable analytic tool for investigating the development of narrative competence.

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(a) Villainous Action
↑
(b) Physical Attack
↑
(c) Hit
↑
(d) Punch
↑
(e) Punch in the Nose
↑
(f) The bear punched the Six Million Dollar Man in the nose.

Figure 1

Hierarchical Organization

of Narrative Elements

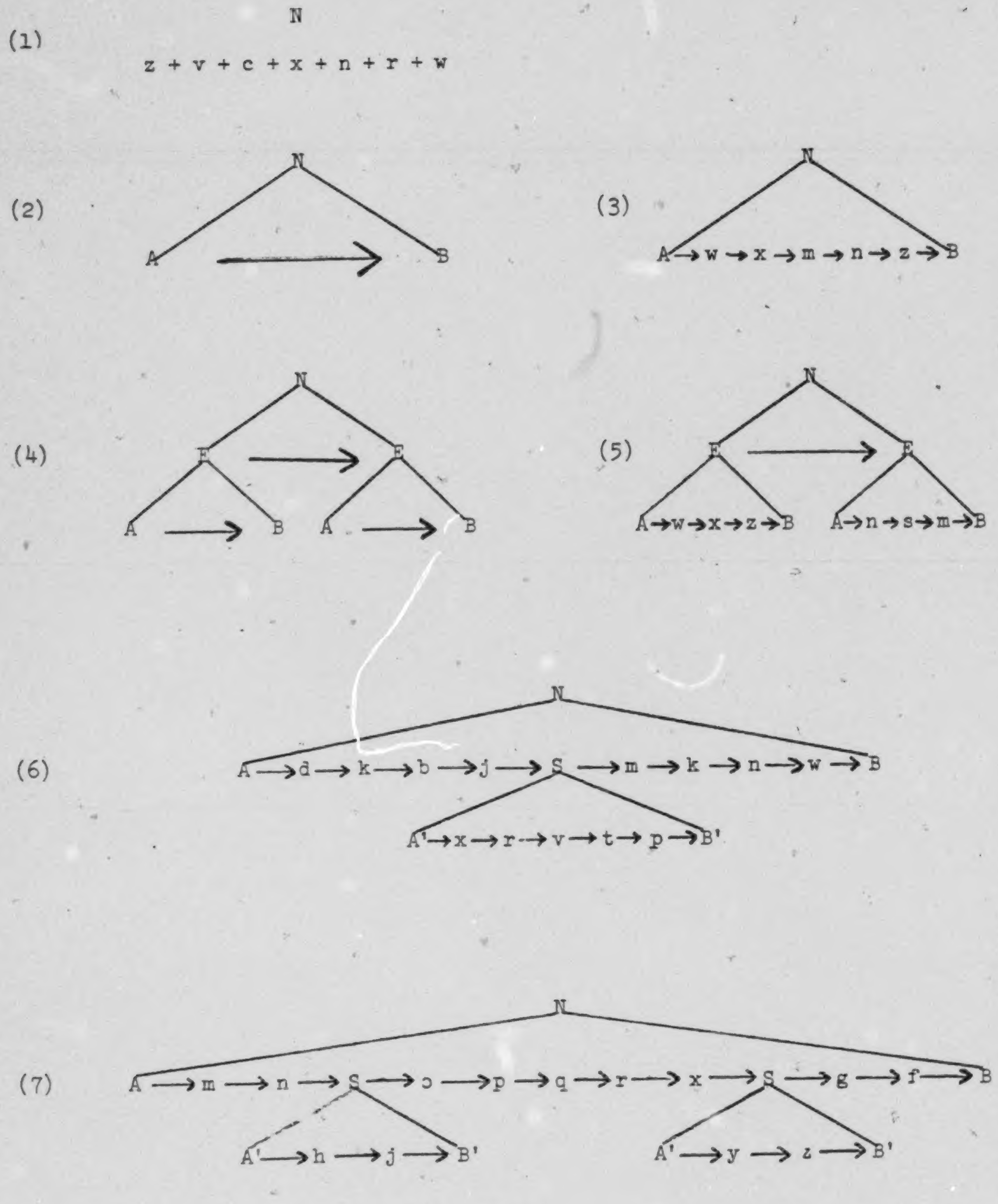

(1)
N
z + v + c + x + n + r + w
(2)
N
A
B
(3)
N
A → w → x → m → n → z → B
(4)
N
E
E
A
B
A
B
(5)
N
E
E
A → w → x → z → B
A → n → s → m → B
(6)
N
A → d → k → b → j → S → m → k → n → w → B
A' → x → r → v → t → p → B'
(7)
N
A → m → n → S → o → p → q → r → x → S → g → f → B
A' → h → j → B'
A' → y → z → B'

Figure 1. Schematization of Levels of Structural Complexity Where narrative N is composed of primary (upper case) and secondary (lower case) plot units which may be coordinated as episodes (E) or hierarchized into plot and subplot (S).

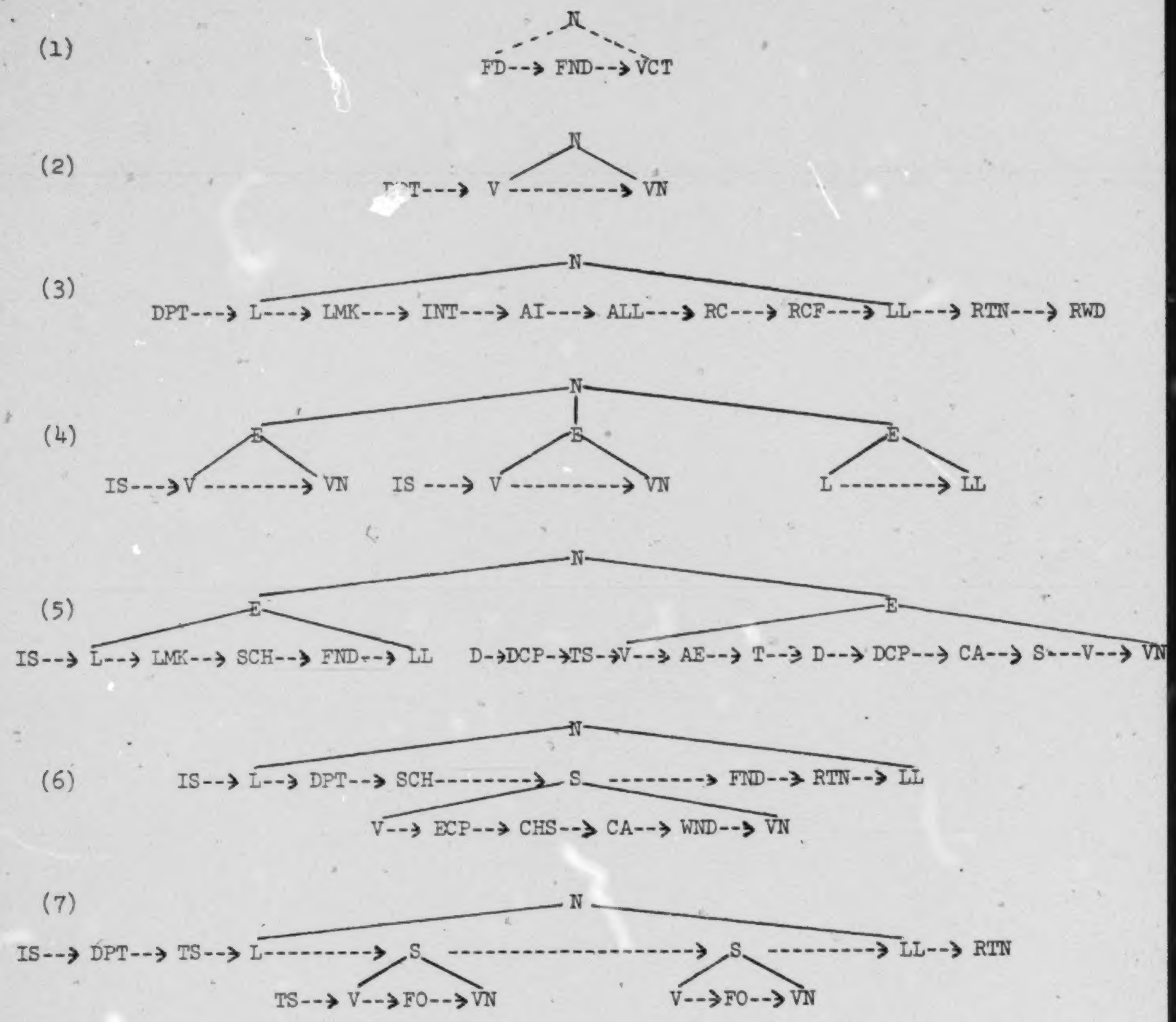

(1)
N
FD--> FND--> VCT
(2)
N
DPT---> V ----------> VN
(3)
N
DPT---> L---> LMK---> INT---> AI---> ALL---> RC---> RCF---> LL---> RTN---> RWD
(4)
N
E
E
E
IS---> V ---------> VN
IS ---> V ----------> VN
L ---------> LL
(5)
N
E
E
IS--> L--> LMK--> SCH--> FND--> LL
D->DCP->TS->V--> AE--> T--> D--> DCP--> CA--> S---V--> VN
(6)
N
IS--> L--> DPT--> SCH---------> S ---------> FND--> RTN--> LL
V--> ECP--> CHS--> CA--> WND--> VN
(7)
N
IS--> DPT--> TS--> L---------> S --------------------> S ---------> LL--> RTN
TS--> V-->FO-->VN
V-->FO-->VN

Figure 2

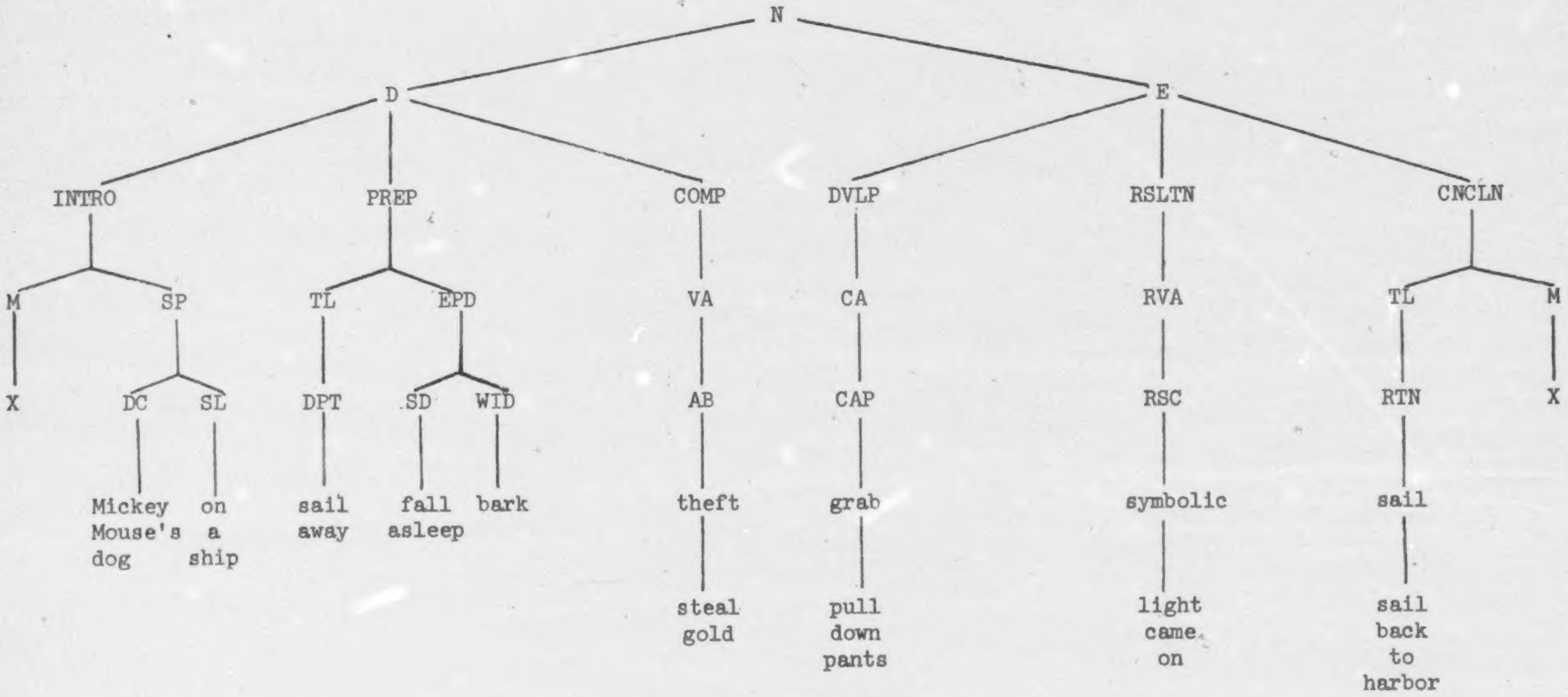
Sample Analysis of the

Levels of Structural Complexity

Figure 4

Tree Diagram of the Derivation of a

Level 3 Narrative



APPENDIX I

INDEX OF PROPP'S FUNCTIONS

	Function	Definition
1.	Absentation	One member of the family absents himself from home
2.	Interdiction	An interdiction is addressed to the hero
3.	Violation	The interdiction is violated
4.	Reconnaissance	The villain makes an attempt at reconnaissance
5.	Delivery	The villain receives information about his victim
6.	Trickery	The villain attempts to deceive his victim in order to take possession of him or his belongings
7.	Complicity	The victim submits to deception and thereby unwittingly helps his enemy
8.	Villainy	The villain causes harm or injury to a member of a family
8.	Lack	One member of a family either lacks something or desires to have something
9.	Mediation	Misfortune or lack is made known; the hero is approached with a request or command; he is allowed to go or he is dispatched
10.	Counteraction	The seeker agrees to or decides upon counteraction
11.	Departure	The hero leaves home
12.	First function of the donor	The hero is tested interrogated, attacked, etc., which prepares the way for his receiving either a magical agent or helper
13.	Hero's reaction	The hero reacts to the actions of the future donor
14.	Provision or receipt of magical agent	The hero acquires the use of a magical agent
15.	Spatial transference between two kingdoms	The hero is transferred, delivered, or led to the whereabouts of an object of search
16.	Struggle	The hero and the villain join in direct combat

17.	Branding	The hero is branded
18.	Victory	The villain is defeated
19.	Misfortune or Lack-Liquidated	The original misfortune or lack is liquidated
20.	Return	The hero returns
21.	Chase	The hero is pursued
22.	Rescue	Rescue of the hero from pursuit
23.	Unrecognized Arrival	The hero, unrecognized, arrives home on in another country
24.	Unfounded Claims	A false hero presents unfounded claims
25.	Difficult Task	A difficult task is proposed to the hero
26.	Solution	The task is resolved
27.	Recognition	The hero is recognized
28.	Exposure	The false hero or villain is exposed
29.	Transfiguration	The hero is given a new appearance
30.	Punishment	The villain is punished
31.	Wedding	The hero is married and ascends the throne

APPENDIX II

TAXONOMY OF NARRATIVE ELEMENTS

Action Elements

Elements Preceding Disequilibrium EPD

1. Threatening Situation TS
   - a. Presence of dangerous animals (wolf, bear, lion)
   - b. Presence of dreadful creatures (monsters, vampires)
   - c. Presence of enemies or opponents
   - d. Presence of dangerous natural forces (fire, water)
2. Warning of Impending Danger WID
   - a. Auditory (screams, ringing of alarm, barking)
   - b. Visual (written warning)
   - c. Olfactory (smell of smoke, smell of poison)
   - d. Magical (premonition, crystal ball, magic mirror)
3. Threat TH
   - a. Threatening sounds (words, growls, hisses)
   - b. Threatening posture or gestures
   - c. Threatening advances
4. Interdiction IN
   - a. Command
   - b. Request
   - c. Advice
   - d. Regulation
5. Violation of an interdiction VL
   - a. Command
   - b. Request
   - c. Advice
   - d. Regulation
6. Compliance with an interdiction CMP
   - a. Command
   - b. Request
   - c. Advice
   - d. Regulation
7. Attempted Deception AD
   - a. Deceptive behavior (play dead, act defeated)
   - b. False information (lie)
   - c. Deceptive appearance (disguise)
   - d. Magical (create illusions)
8. Deception DCP
   - a. Deceptive behavior
   - b. False information
   - c. Deceptive appearance
   - d. Magical

9. Self-Defeat	SD
a. Physical ineptitude (clumsiness)	
b. Intellectual deficiency (forgetfulness, confusion)	
c. Psychological deficiency (fearfulness, lack of caution)	
Disequilibrium Elements: Lack	L
1. Insufficiency	SI
a. Deprivation	
b. Wishfulness	
2. Excess	EX
3. Misfortune	MS
a. Loss	
b. Confinement	
c. Injury	
d. Illness	
e. Property damage	
4. Obstacle	OB
5. Task (Test)	TK
Disequilibrium Elements: Villainous Action	VA
1. Prepare for attack	PA
a. Plan	
b. Acquire weapons	
2. Attack: Bodily Injury	AB
a. Hit	
b. Sting	
c. Stab	
d. Cut	
e. Bite	
f. Scratch or claw	
g. Jump on	
h. Step on	
i. Push	
j. Trip	
k. Choke or strangle	
l. Devour	
m. Shoot	
n. Blow up, bomb	
o. Burn	
p. Poison	
q. Frighten	
r. Ridicule	
s. Harass	
t. Caste spell	
u. Humiliate	
v. Murder	
w. Wound	

3. Attack: Property Damage, Theft AP
    - a. Theft
    - b. Abduction
    - c. Property damage
    - d. Property destruction

4. Chase CHS
    - a. Walk
    - b. Run
    - c. Swim
    - d. Drive
    - e. Sail
    - f. Fly

5. Stalk STK
    - a. Hunt
    - b. Sneak up on
    - c. Ambush
    - d. Set a trap

Counteraction CA

1. Prepare for counterattack PCA
    - a. Plan
    - b. Acquire weapons

2. Counterattack: Bodily Injury CAB
    - a. Hit
    - b. Sting
    - c. Stab
    - d. Cut
    - e. Bite
    - f. Scratch or claw
    - g. Jump on
    - h. Step on
    - i. Push
    - j. Trip
    - k. Choke or strangle
    - l. Devour
    - m. Shoot
    - n. Blow up, bomb
    - o. Burn
    - p. Poisin
    - q. Frighten
    - r. Ridicule
    - s. Harass
    - t. Caste spell
    - u, Humiliate
    - v. Murder
    - w. Wound

3. Counterattack: Property Damage	CAP
a. Theft	
b. Abduction	
c. Property damage	
d. Property destruction	
4. Chase	CHS
a. Walk	
b. Run	
c. Swim	
d. Drive	
e. Sail	
f. Fly	
5. Stalk	STK
a. Hunt	
b. Sneak up on	
c. Ambush	
d. Set a trap	
6. Struggle	STR
a. Physical combat	
b. Game or contest	
c. Problem or puzzle	
Translocations	TL
1. Arrival	ARR
a. Walk	
b. Run	
c. Swim	
d. Drive	
e. Sail	
f. Fly	
2. Departure	DPT
a. Walk	
b. Run	
c. Swim	
d. Drive	
e. Sail	
f. Fly	
3. Translocation	TL
a. Walk	
b. Run	
c. Swim	
d. Drive	
e. Sail	
f. Fly	
4. Return	RTN
a. Walk	

b. Run	
c. Swim	
d. Drive	
e. Sail	
f. Fly	
Transformation	TFN
1. Magical Transformation	MT
a. Change of appearance	
b. Change of attitude	
2. Transformation	TFN
a. Change of appearance	
b. Change of attitude	
Fortuitous Happenings	FH
1. Fortuitous discovery	FD
a. Money or riches	
b. Valuable objects	
c. Important information	
2. Receipt of an Unexpected Gift	UG
a. Money or riches	
b. Awards (prizes, medals, trophies)	
c. Valuable objects (pets, bicycles, toys)	
d. Marriage	
e. Status	
3. Fortuitous Circumstance	FC
a. Withdrawal of threat	
b. Opponent's mistake	
c. Success due to luck	
Consequences of Previous Behavior	CNSQN
1. Reward	RWD
a. Money or riches	
b. Awards	
c. Valuable objects	
d. Marriage	
e. Status	
2. Punishment	PNSH
a. Loss of money or riches	
b. Imprisonment	
c. Loss of property	
d. Banishment	
e. Humiliation	
f. Loss of privilege	
g. Loss of status	

h. Death	
i. Torture and suffering	
Reconnaissance	RCN
1. Observation (watch)	OBS
2. Interrogation (question)	INT
3. Acquisition of Information	AI
4. Failure to Acquire Information	FAI
5. Search (look for person, place, or thing)	SRCH
6. Find	FND
Notification	NTCN
1. State of Insufficiency Made Known	SIMK
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
2. Excess Made Known	EXMK
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
3. Misfortune Made Known	MMK
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
4. Attack Made Known	AMK
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
5. Counterattack Made Known	CAMK
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
6. Escape Made Known	EMK
a. Announcement	
b. Plea for help	

c. Discovery	
d. Recognition	
7. Rescue Made Known	RMK
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
8. Violation Made Known	VMK
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
9. Notification of Intended Departure	NDPT
a. Announcement	
b. Plea for help	
c. Discovery	
d. Recognition	
Alliance	ALL
1. Decision to Help	DH
2. Offer of Assistance	OA
a. Verbal (spoken)	
b. Written	
3. Refusal of Assistance	RA
a. Verbal	
b. Written	
4. Alliance Formation	ALL
a. Enlistment of Allies	
b. Marriage	
5. Breaking of Alliance	BA
a. Separation	
b. Divorce	
Defense	DFNS
1. Prepare for defense	PDF
a. Fortify	
b. Guard	
c. Plan defense	
2. Defend	DFND
a. Block	
b. Duck	
c. Dodge	
d. Ignore	

Escape ESCP

1. Escape from Threatening Situation ETS
   a. Walk
   b. Run
   c. Swim
   d. Drive
   e. Sail
   f. Fly
   g. Climb
   h. Hide
   i. Roll
   j. Jump

2. Escape from Attack EA
   a. Walk
   b. Run
   c. Swim
   d. Drive
   e. Sail
   f. Fly
   g. Climb
   h. Hide
   i. Roll
   j. Jump

3. Escape from Counterattack ECA
   a. Walk
   b. Run
   c. Swim
   d. Drive
   e. Sail
   f. Fly
   g. Climb
   h. Hide
   i. Roll
   j. Jump

4. Escape from Captivity ECPT
   a. Break out
   b. Dig out
   c. Jump out
   d. Sneak out
   e. Solve riddle

5. Attempted Escape AE
   a. Walk
   b. Run
   c. Swim
   d. Drive
   e. Sail
   f. Fly

g. Climb	
h. Hide	
i. Roll	
j. Jump	
Release	RLS
1. Rescue	RSC
a. Direct intervention	
b. Indirect intervention (provide escape vehicle)	
2. Release from Captivity	RCPT
Resusitation and Recovery	RR
1. Revival from Death	RDTH
2. Revival from Unconsciousness	RUN
3. Recovery from Illness	RIL
4. Recover from Injury	RIN
Resolution of Locks	RSL
1. State of Insufficiency Liquidated	SIL
a. Deprivation	
b. Wishfulness	
2. Excess Liquidated	EXL
3. Misfortune Liquidated	ML
a. Loss	
b. Confinement	
c. Injury	
d. Illness	
e. Property damage	
4. Obstacle Overcome	OBO
5. Task Accomplished	TA
6. State of Insufficiency Not Liquidated	SINL
a. Deprivation	
b. Wishfulness	
7. Excess Not Liquidated	EXNL
8. Misfortune Not Liquidated	MNL
a. Loss	
b. Confinement	
c. Injury	
d. Illness	
e. Property damage	

9. Obstacle Not Overcome	OBNO
10. Task Not Accomplished	TNA
Resolution of Villainous Action	RSVA
1. Capture	CPT
a. Trap	
b. Net	
c. Grab (hold)	
d. Overpower	
e. Arrest	
f. Hypnotize	
g. Caste spell	
2. Attempted Capture	ACPT
a. Trap	
b. Net	
c. Grab	
d. Overpower	
e. Arrest	
f. Hypnotize	
g. Caste spell	
3. Defeat	DFT
4. Victory	VCT

Style Elements

Specifications

1. Delineation of Character	DC
2. Specification of Time	ST
3. Specification of Location	SL
4. Background Information	BI

Elaborations

1. Descriptions (detailing)	DS
2. Dialogue	DLG
3. Repetition	REP
4. Statement of the Moral	SM
5. Terminal Explanation	TE

Markers

1. Introductory Marker	IM
2. Terminal Marker	TM
3. Parallel Action Marker	PAM
4. Flashback Marker	FM
5. Convergence Marker	CM
6. Translocation Marker	TLM
7. Character Substitution Marker	CSM
8. Perspective Shift Marker	PSM

Paper #12. The Society and Geography of the Story World

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The systematic study of childrens' extemporaneous stories from the viewpoint of developmental psychology has not until recently extended beyond those told by five-year-olds. Pitcher (1963) and Ames (1966) wrote down the stories told in a nursery (360 from 123 children and one each from 270 children respectively), and analyzed the stories by first recording the frequency of occurrence of various kinds of story characters and actions and then offering what might be called 'psychoanalytic' interpretive models thereof. The recent study by Sutton-Smith (1975) is based upon a wider sample and differs from the earlier studies in both size and method of data gathering. The sample's measurements are: 800 stories from 250 children aged 5 to 11 in a public elementary school, 400 from 22 nursery school children in an ongoing longitundinal project, and 250 stories from adolescents and adults gathered by graduate students. The interpretive models range from a bare structural analysis of character and action manipulation to an indepth analysis of a particular kind of story character, and though the work of coordinating what has been gathered has only begun, there is hope that some of the models may be applicable to other expressive areas (Sutton-Smith et. al., 1976).

The existing models interpret what might be called the 'surface' of the stories. Those from the anthropologists Propp (1928), Dundes (1964), Maranda (1971) and the recent developmental models of Sutton-Smith (1976), Botvin (1976) and Abrams (1976) look either to kinds of story actions, kinds of plot outcome or at a particular kind of story character. Other models such as those of Pitcher and Prelinger (1963), Ames (1966) and Gardner (1973) also interpret the surface but further imply that the surface is an effect, the cause of which is the intersection of certain underlying ego processes. These models do not however, deal with the problem of how characters or actions or plot outcomes are made possible at all (transmitted to the surface) even given the underlying processes. Where the existing models have focused on classes of action (e.g., attack, defense, fight, flight), classes of fate reversal (villainy-villainy nullified, lack-lackliquidated), or classes of plot outcome (success-failure), a model is needed that describes the role of classification itself, as well as the roles of other cognitive systems in the construction of the story surface.

The present paper offers a first step toward a structural model that might interpret the 'subsurface' by examining the organization of the surface manipulation of story characters regardless of the kinds of characters they are. In so doing we might view the influence of various underlying cognitive systems more clearly.

I. Interaction Patterns

We begin by adapting Moreno's sociograms to view the development of the complexity of character interactions with each character represented by a small circle and an arrow that indicates the direction of the interaction.

> the dog went on the puppet..the puppet went on the house..the house went on the pigeon. (Girl, 2)

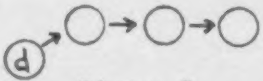

Figure 1

In the first example, we see a chain effect where one character acts upon another, that character upon another, etc. There is no established central character.

> Robin..a monster came and Robin got scared..people..they crashed..they swallowed and pushed him up..down on the floor they got..roar there was a tiger coming (Boy, 2)

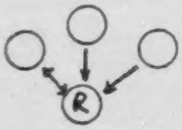

Figure 2

In the second example we find a central character (Robin) involved in action or interaction with other characters more than any of the other characters are and is the center of interaction. These two characteristics serve for the time being to provide loose operational definition of 'central character' though there are problems with this. One can imagine a story where there is a character that fulfills both criteria (center of interaction and most interactive) and yet not be judged as the main character. Who is the main character of Moby Dick? This indicates that the 'main' character and the central character are not necessarily the same. Pitcher and Prelinger (1963) and Maranda (1971) employ a 'most frequently mentioned' criterion for a central character, but exceptions to this are possible. Yet there is considerably good agreement among observers as to which character is the main character. A good case in point is the next story where the robber is mentioned as frequently as the little girl, and is 'introduced.'

> once there was a robber..and then a girl was lost.. and the robber came and put her in jail.. and then the police came and got her out of jail..and then the police put the robber in jail (Girl, 4)

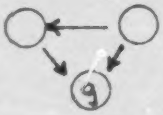

Figure 3

In the preceding and next examples we find the coordination of others. Here, each of the 'other' characters not only relates to the central character but to the other as well.

> tiger catched the cat..then the cat ran away.. he don't like tiger..then the tiger just ran away to the cows..then the cows ran and ate the cat up (Boy, 4)

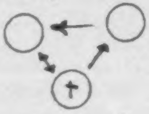

Figure 4

In the last example we find a much more complicated social situation.

Chapter 1.

Once upon a time a boy named Brian was walking about 110 Bedford Street and talking to Gil and then Dave came up and said, "Let's got to Gil's house at 23-B." And Brian said, "No, let's go to my house at 40 Bleeker Street and invite the girls over for lunch." And then Gil said, "Who shall we invite?" "Sara and Tsara." And then Brian said, "We're going to have lots of fun." And Gil said, "Tisk, tisk."

Chapter 2.

The girls came over and when they walked in, out of nowhere came Gil and jumped and leaped on top of the girls. And all of a sudden Brian came out and took off the girls' clothes. And Gil said, "I have a bones." And finally Brian finished them off with his lips.

Chapter 3.

When the girls' mother found out about the sexual assault to their daughters, they steamed over to Brian and Gil and Dave and said, "GOOD WORK." And Brian, Gil and Dave lived happily ever after with the girls' parents. The end. (Boy, 10)

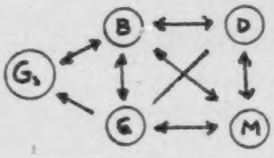

Figure 5

Here is a four-way interaction system that is similar to the type found in the Little Red Riding Hood tale where Little Red, the hunter, Grandmother, and the wolf all interact with each other. (The mother is less interactive and fits the situation of the girls in the sample story.)

We note here that playgroun games can also be represented with sociograms. For example, early tag when viewed through a sociogram reveals the egocentric coordination of 'It' as the central character (fig. 2). All the others coordinate to the 'It' and do not coordinate to each other while later games of tag require the cooperation (coordination) of others (fig. 3) such as in prisoners' base, and games like basketball have patterns similar to the last (Stevens, 1976).

II. Groups

Next we examine the development of the coordination of groups of characters. A group of characters is operationally defined as a collection of characters mentioned by the author usually with some sort of plural noun. In this first example we see the 'children' as a group that is coordinated 'as one,' and there are no interactions amongst the group's member children. The symbol for this type of group is indicated by the circle figure and consists of two small inner circles that stand for members of the group, an outer circle that stands for the boundary of the group, and an inner boundary line that in this case indicates that there are no interactions between its members.

> the man stayed home..the children went out..then a cookie monster came..then the cookie monster went away..and the mommy was angry..and then the father was angry..and then the children went out again..then the father went out.. then the mother went out..they went to the park..then they went home..and then the father was doing work..and then it was getting late..the children went to sleep..and the mommy and the father went to sleep. (Girl, 2)

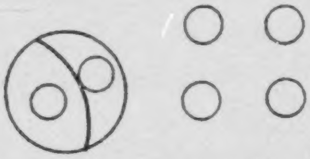

Figure 6

The symbol is said then to refer to a nonpermeable group, that is, the individual members do not interact with other characters that are outside of the group. The following contain further examples of the nonpermeable group.

> monkeys..they went up sky..cookie monster..he flew down in the sky..fall down in the sky (boy, 2)

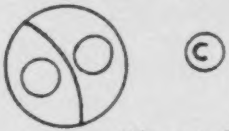

Figure 7

> frogs..they went in a house..they went in a park..they pushed on the people..the people got hurt..they got mad at the frogs. (Boy, 2)

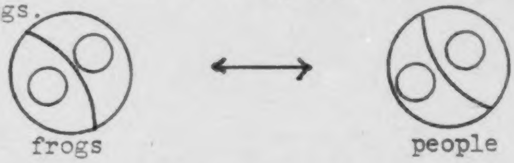

Figure 8

> once lived three little pigs..and a wolf came along..and said "knock..knock on my chinny chin chin"..and the wolf blowed house down..and they ran to another house..and the wolf chases them there..and said "knock..knock on my chinny chin chin". and the wolf went to another house made out of bricks..then then wolf went on the chimney..and he went in it and fell in the fire..that's it. (Girl, 3)

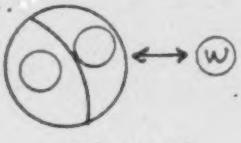

Figure 9

> Once there was two bears. And they went to the country and they got a country house and they went swimming. Once they went swimming and they got lost. And there was a nice whale that picked them up and brought them back to their house. Then he said, "Goodbye," and asked them next time if they got lost to come with him to his house. And they went to his house next time they got lost and lived happily ever after. And they got rid of their country house and went to live in the whale's house. The end.
> (Girl, 6)

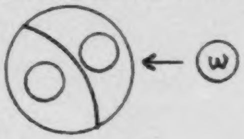

Figure 10

With the stories of six-year-olds we begin to find permeable groups of characters. The operational definition of this type of group is that the characters are introduced and manipulated 'as one,' but soon particular members of the group have some sort of interaction with other characters.

> There was a father that had a little girl that's name was Sally. They had a duck pond. Once the little girl went out to the duck pond to see the ducks and she saw one little duck that was lost. And she took it home and she lived happily ever after.
> (Girl, 5)

The symbol for this situation is constructed with the dotted outer boundary line that indicates that the group is permeable and the solid inner boundary line that indicates that the members do not interact with each other.

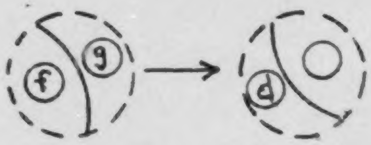

Figure 11

(The number of inner circles need not correspond to the actual number of members in the group.) In the above example the ducks are introduced 'as one,' but one of the ducks is selected for rescue, and the girl has interactions with characters outside of her alliance with her father.

By nine years of age in our sample, permeable subgroups emerge. That is, a larger group of characters is introduced as one and then a smaller group made up of members of the larger group is separated, so to speak, and has its own interaction with other members of the totality of story characters.

> Once upon a time there was a bomb that blew up the world. And then Jupiter they started building a new world. But the people went crazy because they weren't Earthlings. They were Jupitrons and suddenly Mars blew up and they were trying to fix up Mars too. But they only had two million people, but a quarter million died because they were on Earth too long. And another half

> million more died because they were trying to fix up Mars. Then Venus blew up and then another quarter million other people died because they were trying to fix up Mars. So they only have a million more people. Then Uranus and Neptune blew up and they sent space ships over to Neptune and Uranus. But the space ships saw a red beam of light and it kept trying to blow them up, but it kept missing. And they found out that it was going to blow up the universe. Just at that moment it blew up Pluto and Mercury and then they moved and Saturn came along too and the two planets mated and got some more planets, seven more planets. And they lived happily ever after in the new solar system. (Boy, 10)

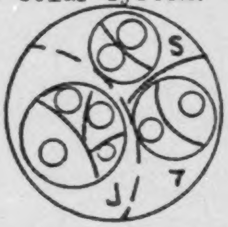

Figure 12

The symbol for this is represented by the above diagram, using the same criteria as before. The subgroup itself can be permeable or nonpermeable, with the nonpermeable type found much earlier. It is interesting to note that at this point the children do not seem to go through a shift from nonpermeable to permeable subgroups indicating that the repertoire might be cumulative, that is, all of the preceding types of character manipulation may immediately by made available upon a reorganization such as is permeability. Another story with permeable subgroups is found at the end of section IV.

IV. Valence

In some cases the groups are formed after each member of the group is introduced separately. In the first example we see a group formed after King Kong and the two helpers (Frankenstein and Godzilla) are separately introduced.

> Once upon a time there was a ferocious monster King Kong.. and he had two helpers and the helpers were named Frankenstein and Godzilla..and then they all went out and scared the people.. and when the people got out of the houses.. and then they tore them up after they learned how to make camps..and then the monsters made a fire and then they ate the people..and then they got so fat that they popped..the end (Boy 4,9)

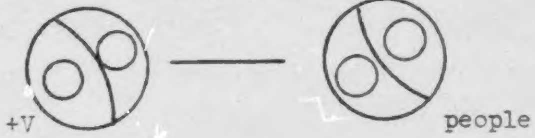

Figure 13

We adopt the term valence from physics that refers to a bonding activity and for the purpose of the present study provides a useful way viewing those stories wherein the formation of nonpermeable and permeable groups can be viewed.

The group that consists of the evil types and the second group "the people" are both nonpermeable groups. Thus, the valence is only a + valence in our terminology because we can see only the formation of the group. Had the group become permeable the valence would have been positive and negative with the term 'negative valence' referring to the dissolution of the bond. After the group is formed and treated 'as one' by the authors, each individual member is free to interact with other characters or groups of characters. The next story serves to illustrate this second type ofvalence, reversible valence.

> Robby and Robee went to, um, Rock Mountain, and they started to climb it. (Here comes the funny part) And they ran into a looney and the looney hit Robby. And Robby swinged around and hit him and made him hit Robee. And then Robee hit him and made .. (story continues) (Boy, 6)

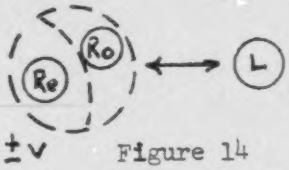

Figure 14

The following story illustrates a systematic dissolution of the alliance.

> Once there was a girl named Rita. She lived on an old block in the hundreds up on the East Side. Her mother was a cleaning lady and that was the way she supported her family. She always made Rita work, help with the work. One day her friend Rosa came up and asked her if she'd like to go for a walk down the block. So, she told her mother that she'd do her work later. So, they both went down the stairs and out on the block. They were walking down the block that nobody ever went on when Rita felt a knife at her back. She turned around and she saw that it was only her little brother with his fake knife. So then he said, "Mom said she wants you home so she can go out for a while and you can walk with Rosa later." So they all walked back to Rita's house and Rita said goodbye to Rosa and walked upstairs with her brother. That's the end. (Girl, 9)

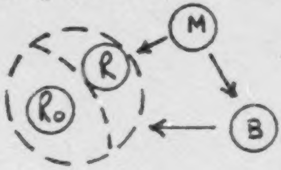

Figure 15

The earliest reversible valences appeared in the stories of the six and near-six-year-olds. The ducks story (fig. 11) thus contains both types of permeable groups, i.e., those introduced 'as one' (the ducks) and those whoe formation (+V) can be viewed (father/daughter alliance).

IV. Reverse Polarity Groups

The reverse polarity groups are usually of the polarity of morality type, good guys/bad guys et.al. We wish here only to propse that polarity is 'superimposed' if you will, on the types of character manipulation we have just seen. In the earlier example of the frogs and people (fig. 8) we saw two nonpermeable groups in opposition, and the following stories contain examples of reverse polarity groups that are the nonpermeable, permeable, and subgroup type. Our point is that polarity seems to be a separate consideration that perhaps is the result of a different organizational system than the character manipulation system, since it may simply be a matter of superimpostion 'on' or a placing of polarity 'within' other systems of character manipulation.

The following three examples illustrate reverse polarity applied to nonpermeable, permeable and groups with permeable subgroups.

(nonpermeable)

> About a Martian. There were two Martians. They lived on a planet X. There was another planet with which they were having a battle. The other people were named to O men. These were the X men. I like the X men better. They had a war. They shot off a lot of rockets. And the X men win. Then they all played tic tac toe. And the X men won again. (Boy, 6)

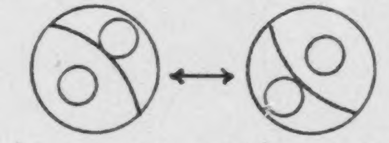

Figure 16

(permeable)

> The Super pirate pumpkins had a big crash on a big pumpkin boat rock. Then the good guys went on an island. And the bad guys threw a big pumpkin rock. Then the pirate boat sinked. Then they all went into the life boats. Then when they got in the boats, they were rubber and they sinked again. Then they went in a metal boat and the bad guys got away from the good guys. Then pumpkin Superman crashed into their boat and beat them off. Then pumpkin Superman drove off in the boat with all the money and then went to the pumpkin bank and put the money back in. And then the pumpkin robbers got locked up in jail because they stole the boat and the boat had money in it. (Boy, 5)

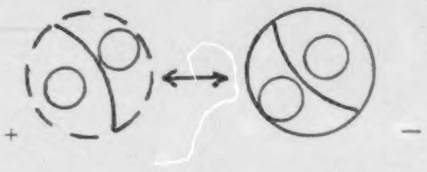

Figure 17

(permeable subgroups)

> It's about a German squadron of planes flying over the hills and the French base came out of the ground. Guns came out of the hills and radar. They shot down one of the planes and then the two guys parachuted down in a double parachute. Then they saw a big bomber. (Aside to storytaker: I wonder if it should drop a bomb? I want the French to win.) Then we shot with one of our artillery guns and got one of the engines. Perfect shot. And then we pushed a button and the missile popped out of the hill. (I won't know if we need to fire it.) And then the bomber dropped one bomb. And it landed on a big platform full of machine guns. It blew up. Then we got mad at the bomber and we pushed a button and the anti-bomber gun came out. It shot out lots and lots of little tin missiles and they landed all over it. And then there was no more bomber. And then three of the planes left and there was only one left. (Five to begin with, one shot down.) And then the pilot of the other plane looked around and said, "Where did everybody go?". (With a German accent.) So he got scared of being all alone over a French base and he went home too. And so then there were no more German planes. We won. The end.
>
> (Boy, 10)

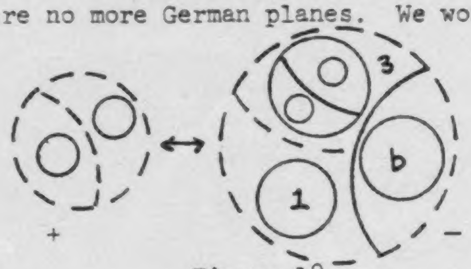

Figure 18

V. The Story Space

A few of the earliest stories take place in a simple single space or a chain of simple single spaces. We determine this type of story space from the verbs 'came' and 'went.' In the following story, the action seems to take place in a single central space.

> The mother went out..then the father went out.. then the mother went out again..and then the father went out..then the children went out..then policeman came..the mother came back from the meeting..then the father came back from the meeting..then a cookie monster came..and the policeman came again..then the cookie monster went away.
>
> (Girl, 2)

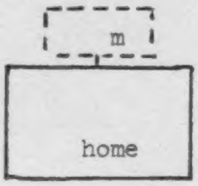

Figure 19

In the earlier example (fig. 8) of the frogs, "..they went in a house" implies a transversal from an undisclosed space. When the storyteller continues with "..they went in a park," he has shifted the action to a new space where, presumably, the rest of the story occurs. The point is, though, that the spaces are not coordinated into a larger space where two locations are connected by the reverse transversals of any character.

> I'll tell you a story. He's going to be a pumpkin man. Once upon a time, there was a pumpkin man. And he lived in a little pumpkin house close by the city. And he wanted to go to the city, so he went to the pumpkin-mobile and he went faster than the speed bullet, more powerful than a locomotor. He could go down the highest hill in a single bound. And he went so fast that he past-ted the store than we wanted to go to. Then when he got back home, he went to bed. (Boy, 5)

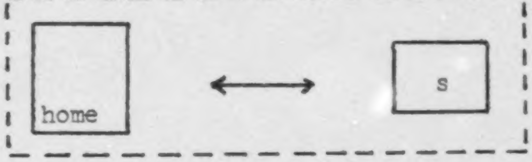

Figure 20

In the above we find two separate locations connected by his transversals from 'home' and 'away' and back 'home' again. The odyssey is not reported in a 'came/went' fashion indicating that the author sees the two spaces from a third viewpoint. Thus, the author has coordinated a larger space that is the result of the coordination of two separate, smaller spaces. Another example of this is the earlier Rita and Rosa story (fig. 15), where the characters traverse a path to another space, "an old street.." and then back again. In general, we have found that the central action reversals occur in the 'other' space as in pumpkin man passing the store that he wanted to go to and Rita's crisis (knife at her back) on an old block. (Cf. Sutton-Smith, et al., 1976).

Even later we find the 'complex multispace' encompassing another location that is noncontinguous with an itiial location, and has the added feature that a parallel duration in time is attributed to both spaces. This we call parallel action and is indicated in the stories by markers such as 'while' or 'meanwhile' and marks the coordination of space and time.

> Once upon a ghostly afternoon Mary and Little Eva Hotchkins were sitting in the living room of the Hotchkin's manor. They got a disturbing phone call saying that Mr. H., an airforce pilot was killed in flight. The telephone call said to come to the war office. They both ran downstairs and outside to the chauffeur. Mrs. H. put her head on his shoulder and started to weep. He tried to comfort her and he asked her what was the matter. She said in a cry, "He is dead." The chauffeur named Roy asked "Who is dead?" "Mr. H.," she cried. They jumped into their Rolls Royce and zoomed to the war office.
>
> Meanwhile in the war office some crooks were taking it over. They tied up all the executives and staff of the war office and hid

them in the basement. They changed their clothes with the executives and went to work. (Story continues) (Boy, 11)

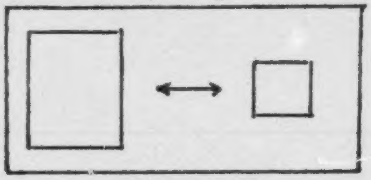

Figure 21

VI. Discussion

What might we say about the various lines developed here? We have seen:

a) a developmental shift from nonpermeable to permeable groups of characters and a later shift to permeable subgroups;

b) a shift from nonreversible to reversible valence;

c) the application of reverse polarity to groups;

d) the contemporaneous nature of the above shifts;

e) a steady increase in the complexity of the story sociograms;

f) a parallel order of shifts in the spatial organization of the story world with all of the above.

Immediately noticed are evidences of reversibility. By the age of six the authors can produce stories with reverse relationships between characters (good guy/bad guy), reverse spatiotemporal transversals (pumpkin man's reversible ogyssey, fig. 20), and reversals in the fate of characters (Rita's survival , fig. 15). Reversibility seems further evident in the story sociograms which illustrate the directional reversals inherent in any interaction, in reciprocal actions (the police and the girl, fig. 3), and reciprocal viewpoints ascribed to characters ("they saw each other"), and in the coordination of inversion and negation in a single story character (reversals in Rita's path and fate). Even further there is reversible valence (the unbonding of Robby and Robee, fig. 14). And, as if exploring the role of reversibility in the construction of the surface weren't enough, there arises the question of the role of classification in character manipulations,(groups and subgroups), in classes of actions and plots, and in the reverse polarity groups. And we have only begun the exploration of the 'subsurface' for we have yet to look at the contributions of other cognitive systems such as seriation, conservation, mental imagery (static and kinetic), space and time, to name a few.

Some more general issues might arise here as well. Firstly, there is the problem of the nature of fantasy structures and their relation to the non-fantasy activities of the child. Is the organization of the story world isomorphic to the organization of the child's experience? Relevant is the idea that space is the coordination of objects and not a container that surrounds them (which goes back at least to Leibniz and Kant). Consequently the view that the spatial and social organizations found in the story world are inextricably intertwined due to the nature of the processes that construct them seems not unharmonious. Piaget (1956, 1966) and others (Laurendeau and Pinard, 1970) have investigated the same intertwining of spatial and social organization. Similarities can be seen in the necessary (though not sufficient) operations that are required to coordinate the various views of an object (coordination of viewpoints) and in the coordination of the viewpoints of thers in social interaction.

Secondly, the experimental methods for investigating the child's view of the world require the child to perform specific tasks, mostly the solution of problems. We offer here the notion that the extemporaneous stories of children might provide another method for determining the stage of cognitive development based upon a structural analysis of the stories. In addition, it might be possible to say that where existing research has focused on the child's *maintenance* of equilibrium, the present research investigates the child's *manipulation* of equilibrium.

Thirdly, a developmental social psychology of early childhood might be possible if it can be established that the child's understanding (coordination) of story characters mirrors his real world, social understanding. The level of social understanding would be viewed in the classroom, the playground, the story, and all three compared using the sociograms.

Lastly, it is possible that children organize the story world in exactly the same wasy as their 'real' experience and, fantasizing further, it is logically possible at least that reality is an externalization of fantasy and not vice versa! We might even find some cognitive processes occurring in fantasy activity that are not to be found elsewhere.

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IV. RESULTS

(C) EXPRESSIVE PROFILE

Paper #13. The Expressive Profile:
Improvisation, Story and Art

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In a recent paper dealing with childlore and the expressive profile, Sutton-Smith (1970) has described a conceptual model for children's expressive behavior. The impetus for the present study came from the need to begin a "social science of expressive forms." More specifically, this paper deals with one type of expressive phenomena, the artistic; considerations of the other three types, imaginative, mass media, and folk forms will not be examined.

The post-sputnik decades have witnessed a gradual awareness that without the arts and other expressive activities, education for many children is an alienating, boring experience. The arts have been used by adults for enticing children's interests in more traditionally required subjects, such as social studies, science, and in the early years, the first R; but they have also been serving other functions and have become valued, especially in personality and social development, as important in their own right. In view of the increasing emphasis on the arts in education and menta health, the paucity of research in their functions and developmental natures is alarming. One exception to this is the graphic arts -- drawing and painting -- often referred to in schools as "art".

A quick look at psychological material in the area of children's drawing and painting is rewarding. There are books on intellectual relationships (Harris, 1963), longitudinal studies (Eng, 1931), developmental stages (Kellogg, 1967; Koppitz, 1968), personality and mental health (Alschuler and Hattwick, 1947; Naumburg, 1947), social values (Dennis, 1966) and a host of other aspects and perspectives.

Music and movement offer a few selections, but most of these come from educators trained in these arts; they are "how to" rather than "what is" books (an example of these is Maynard, 1968). Recently story-telling and dramatic improvisation have been studied by psychologists; analyses and descriptive accounts comparable to those of children's drawings are being attempted. Pitcher and Prelinger (1963) presented both the structural and the psychological components of stories told by 2 to 5 year old boys and girls. Lazier, Sutton-Smith and Zahn (1971) analyzed dramatic improvisations done by 7 to 12 year olds. It is apparent that these studies in the various art forms can by keys used by adults to get past doors which often keep us out of the world of children, a world we need to remember and understand if we are to interest, involve and facilitate learning.

"The social science of expressive forms" (Sutton-Smith, 1970) is a new field with only a handful of researchers and some initial data. Sutton-Smith has suggested systematic analyses involving functional and formal questions which could evolve into "a network of relationships between forms and functions...yielding...us a more sound understanding of the meaning of childlore." (1970) Regardless of the systems of analysis chosen, there are a variety of questions to which such analyses of expressive behavior might be addressed.

The first question from a developmental psychologist is that of developmental differences. What are the behavioral differences at various age groups? Also of interest are the psychological and functional ramifications of participation in the various arts. What personality and psychological attributes are associated with involvement in a particular art form?

A third question to be explored is that of sex differences. Are particular behaviors different for boys and for girls? How are they different and what are the antecedent conditions? A fourth consideration involves the individual. From a phenomenological stance, does a child enjoy and choose over others the form in which he best expresses himself (according to himself and/or others)? How, from an outside stance, does a child perform across a range of expressive forms? Can we speak of an expressive profile and, as we do for intellectual functioning, use a quotient of expressiveness -- an E.Q.?

A fifth question concerns conceptualizing artistic performance. Are there children who do well on all areas of art forms? What are the psychological and social attributes of such children? What are the relationships between performance on different aspects of different media?

The present study was designed to expose a homogeneous group of children to a variety of expressive experiences. Although no particular hypotheses were tested, there were several questions which guided the design and the analyses of the data. The questions which seemed both fundamental and conducive to generating hypotheses were those of sex and age differences, and inter-media relationships. In addition an exploration of procedures for constructing individual profiles was begun.

This study was therefore directed to the following questions: (1) How can various groups (age and sex) performance on a variety of expressive media be described? (2) What are the relationships among aspects of performance on various media? In other words, what are the inter-media relationships? (3) What can be said regarding an individual's performance across several art forms?

Method

Subjects

Ss were 34 white, middle-class children of graduate students, faculty and staff at Teachers College, Columbia University. The ages of the 22 females and 12 males ranged from 7 years to 12 years 4 months. All were enrolled in the Agnes Russell School of Teachers College and had been taking part in an after school creative dramatics program for at least 6 months. The program included 47 children who met once a week in seven groups of 5 to 10 children per group. Behaviors in the four media were recorded and collected from all these children. For the analyses non-Caucasian or children of foreign birth were eliminated from the sample.

Procedure and Apparatus

Drama: The drama classroom was a 20' by 15' carpeted room with a one-way mirror along the length of one wall and a small control room visible through a glass window on an adjacent wall. On the first day of the study the children gathered as usual outside the door of their classroom. They were met by an assistant of E who asked them to wait in a nearby snackroom where they would be met one at a time by their teacher. As each child arrived in the classroom with the teacher, the teacher said the following:

> I want you to imagine something for me. Right here where my fingers are touching the ground I want you to suddenly find a large, brown wallet. It has 20 one dollar bills in it. I want you to do something with it. I want you to find it, pick it up, and then do whatever you might do if you really found a wallet. Wait until I sit down before you start.

The child then improvised what we called "Scene One."

> OK. Now this time I want to add something and that is a place for you to be when you find the wallet. Now I'd like you to imagine that this room is a city park. Over there is a sandbox and along here you can see the swings. Now the wallet is still lying on the ground where it was before. So I want you to find it, pick it up and do something with it. But you can play in the park a while before you find it. OK? Wait until I sit down before you start.

The child then improvised "Scene Two."

> This time I want to add something else. And that is in the park where you find the wallet there's another person, a policeman and I'm going to be the policeman. Now you're going to play in the park awhile, find the wallet, pick it up and the policeman will be over there behind those trees. You don't see the policeman until he sees you. I'll hid behind these trees.

The child then improvises "Scene Three."

The three scenes were recorded by two video cameras, three microphones and a video tape recorder. A zoom lens camera was placed on a tripod behind the window in the control room. A wide-angles lens camera was mounted high on the wall in a corner of the room. By means of monitors and a selector in the control room, the camera operator could continually select which image (either that picked up by the hand operated zoom or that from the mounted wide-angle) to record on the tape. The microphones, which hung from the ceiling of the classroom, were connected to the recording system in the control room.

Following the third scene the teacher opened the door and introduced the child to one of the three experimenters "who wants to work with you for a few minutes." First names were used. E then led S into a small office down the corridor from the classroom. On one of the desks E had placed a cassette tape recorder, a stack of 8 x 10 white, unlined paper, and a box of crayons. E asked S to sit down at the desk and when they were both seated and comfortable E asked S to "tell the story of what you just acted." E turned on the recorder.

Drawing: E then asked S to use the crayons and paper to draw a picture of what had just been acted in the drama classroom.

The following week the children improvised another skit, recorded by the same video equipment but not analyzed for this study. The skit was followed by a session with one of the three Es.

Vocal Expression of emotions: After the second drama session each S again went to the small office with E. On the desk E had placed the cassette tape recorder, a book (Kellogg, 1967) and a 5 x 8 index card. E said "I'd like to do some acting with you. I've written your part on this index card. Could you read it to me? S was then handed the card with these words printed on it: I'm all done with this work. I want to do something else now. E said, "Let's pretend that I'm your teacher. You're all done with some work and you want to go on to something else. Let's do it five times, but each time you will feel different towards me. The different ways are happy, angry, loving, sad and afraid." The order of the emotions was random and therefore each child had a specific assigned order. E then asked S, "Do you understand?" The instructions were repeated if the child showed any indication of being confused. The tape recorder was turned on when S gave a signal.

Story: After the vocal expression of emotions each child was shown pp. 108-109 of the Kellogg book. E said, "Please pick out any one picture on this page (there are 4) and tell me a story you make up from the picture." When S indicated the tape recorder was turned on.

Human Figure Drawing: The following week E made a visit to each drama class and asked each child to "draw a person, a whole person" on a piece of white unlined 8 x 10 paper. The children were able to choose pencil or crayons or both.

Scoring

Drama: The video tapes were viewed by two independent teams, each comprised of at least one psychologist and one person from the theatre arts profession. The first team consisted of a professor from each discipline and the second team of two graduate students in psychology and one former actress.

The teams scored the tapes for two sets of variables. The first or "A" set was the structural variables. These included: number of incidents within each scene (see motivational unit in Dietrich, 1953), number of repeats of incidents, and time of resistance to policeman (in scene three). The second set of variables were measures of "affective, empathic competence (Sutton-Smith, et al, 1971). These consisted of enthusiasm, involvement, affect, communication, body and imagination. The dramatic scoring manual for the second or "B" variables in included in Appendix II.

Drawing: The drawing of the improvisations was scored by the write for the following: police (present or absent), number of incidents, (activities) given by the teacher's instructions, number of novel incidents (conceived by the child whether acted or not), number of people, number of people parts, number of things, number of thing parts (and repeats of these), number of colors used, percentage of page space used, complexity of people (number of people parts divided by number of people) and complexity of things (number of things parts divided by number of things).

Vocal expression of emotions: The experimenter and another psychologist (Mr. Jerry Schwartz) listened to the cassette tape recordings of each child saying "I'm all done with this work. I want to do something else now." They independently rated each child for the different times the sentence was said, giving a score from 0 to 5 corresponding with degree of emotional expressiveness. A score of 0 represented no emotional expression and a score of 5 represented very clear expressiveness.

Stories: The stories were rated by the experimenter and another psychologist according to the system presented by Pitcher and Prelinger (1963). For each of the 7 variables (spatial expansion, external differentiation of main figure, inner complexity of characters, range of activity or passivity of characters, realism, action vs. thought processes, and emotional differentiation) a score from 1 to 5 was given to each story. Number of words in the story was counted for each S.

Human Figure Drawing: The HFDs were scored by the same raters who scored the stories. They were scored according to Koppitz (1968) for developmental items and emotional indicators.

In each medium the child's final score for a variable was the average of the raters' scores. In order to provide one score for each subject on each medium, several new variables were constructed. These were a Vocal Expression of Emotions score (VEE) comprised of the total of the 5 emotions' scores, a Drawing score which included police, # incidents, people, people parts, things, thing parts, thing part repeats, colors, % page, people complexity and thing complexity, a Story score including the seven story variables, Drama B consisting of all the Drama B variables, and a Drama A Score including the sum of acts and repeats.

Results

Since one of the major aims of the study was to generate rather than to test hypotheses, descriptive analyses of the data are as appropriate as statistical tests. Furthermore, the large number of variables (43 excluding age and sex) compared to the sample size (34) would make the attainment of statistical significance more difficult. Both forms of analysis are therefore utilized.

I. Group Performance

Due to absences from school, all children did not participate in all aspects of the study. All children were present for the Drama tapings.

Comparisons of sex groups. In order to determine if there were significant differences between the mean scores of the boys and those of the girls, t tests were computed for each of the variables. For the female and male groups 3 of the 43 comparisons were significant beyond the .05 level. These were on the drawing medium: % page used, (females higher, t = 2.061), people parts (males higher, t = 2.630), and people complexity (males higher, t = 2.383). These data are presented in Table 1.

Insert Table 1 here

Comparisons of age groups. For the younger and older groups (younger children were those 7-9 years old; older children were those 10-12 years old(t tests were also computed. Of the 43 comparisons, 8 were beyond the .05 level of significance.

The older groups scored significantly higher on 7 variables. These were the developmental scale of the HFD (t = 2.758, p .01), given incidents (t = 2.299, p .05), thing parts (t = 2.520, p .02), thing part repeats (t = 3.233, p .01), parts and repeats (t = 3.352, p .01), drawing total (t = 2.402, p .05), and spatial (t = 2.744, p .02).

The younger children scored significantly higher on resistance time on the drama (t = 2.076, p .05). The means, standard deviations, and t value for all the younger-older comparisons are presented in Table 3.

Insert Table 2 here

Age was correlated with each variable except drama and story totals. The three significant correlations were HFD developmental (r = .49, p .005), things (r = .47, p .005) and thing parts (r = .502, p .005).

II. Variable Relationships.

One aim of the study was to explore the intermedia relationships. In other words, what can we say about performance on one medium as it relates to performance on another? This can be asked for similar types of measures, such as # of incidents on the drawing medium and # of acts on drama, or for measures which may not appear to be tapping similar attributes or skills. In order to explore the possibility of underlying traits or abilities -- those not necessarily measured by one medium -- these relationships between variables are of interest.

Correlations of all variables. Due to the large number of variables and the relatively small sample size, a factor analysis was not considered appropriate. In order to find what relationships might exist, correlations were computed for 40 variables (all except sex, drama media scores and story media scores).

Of the 752 correlations, 144 were significant beyond the .05 level. The number of significant correlations at this level expected by chance is 38.

Of the total correlations, 165 were correlations within media -- that is, these were correlations of variables with other variables in the same medium. The other 587 include each variable correlated with age and with variables in the other media. Of the significant variables, 59 are intermedia and age correlations, and 85 are of the intra-medium type. This means that the variables were more highly correlated with their own medium than with variables in other media. This is an expected result. Table 3 presents the distribution of significant correlations.

Insert Table 3 here

In order to discover which variables were most highly correlated with other media, a list was made of those variables with 2 or more significant correlations with variables from other media. This list is Table 4.

Insert Table 4 here

Multiple Linear Regression: prediction of drama B scores by drawing scores.

A step-wise multiple linear regression* was computed in order to determine the extent to which drawing performance and human figure drawing performance could predict drama B scores. For these analyses younger (n = 13) and older (n = 15) groups were formed.

For the younger group communication scores could be predicted by the drawing variables. This was predicted by the number of people and the number of colors drawn (F = 4.488 for 2 and 10 df), by these two scores plus the emotion variable on the HFD (F = 4.186 for 3 and 5 df), and by the drawing total (F = 4.126 for 1 and 11 df).

For the older group affect, imagination, body, communication, and total drama B scores were significantly predicted by the drawning variables. Affect was predicted by the developmental and emotional scores (HFD) and the drawing total)F = 4.268 for 3 and 11 df), by these plus number of things drawn (F = 4.113 for 4 and 10 df), and by all of these plus number of colors (F = 4.120 for 5 and 9 df).

Imagination was significantly predicted by developmental, people, incidents, and total drawing (F= 5.104 for 4 and 10 df) and by all of these plus emotional (HFD) (F = 5.759 for 5 and 9 df).

Body scores were significantly predicted for the older group for measures taken before and after scene 3 when the policeman entered the drama improvisation. For the first body measurement (before policeman entered) emotional and developmental scores significantly predicted body score (F = 4.315 for 2 and 12 df), these two plus drawing total (F = 4.542 for 3 and 11 df), for these three plus incidents (F = 4.514 for 4 and 10 df) and all these plus colors (F = 3.597 for 5 and 9 df). The second body scores (those taken after Policeman entered) were predicted significantly by emotional and developmental (F = 4.709 for 2 and 12 df), by these plus drawing total (F = 5.216 for 3 and 11 df), by these plus things (F = 4.311 for 4 and 10 df) and for all of these plus people (F = 3.368 for 5 and 9df).

Also predicted for the older children were total drama B score and communication. The total score was significantly predicted by emotional, developmental, colors, incidents, and total drawing score (F = 3.492 for 5 and 9 df). Communication was predicted by things, total drawing, developmental (F = 3.799 for 3 and 11 df) and by these plus incidents (F = 3.495 for 4 and 10 df). All of these were significant beyond the .05 level.

Discussion

Group Performances

Sex differences. Of the 43 t tests just 3 were significant beyond the .05 level. Although this is better than the 2 one would expect by chance, it is probably reasonable to say that in our sample, sex of subject did not have a strong influence on performance. With great reserve, we could say that the males tended to score higher on the drama variables, with scores higher than the females on 8 of the 9 variables. The females scored higher than the males on 9 of the 14 drawing variables. None of the media scores differentiated the sexes.

Age differences. The Developmental Scale of the HFD was able to significantly differentiate the age groups. In addition to providing validation for this measure, this finding is an indication that the subject age groupings were reflecting different age levels.

Although the age differences in drama were found in a previous study (Lazier et al., 1971) to be clearer in the first scene of the improvisation and less significant as the improvisation progressed, age differences were still found when all scenes' performances were averaged. The most significant difference was in resistance time. The younger children were spending more time in verbal and non-verbal resistance to the policeman in the last scene. It is interesting that they also tended to draw the policeman more in the after-drama drawing.

The involvement with the authority figure was not the only finding that differentiated age in a dimension which cut across media. The older children drew more detailed things and people. This finding relates closely to the finding reported by Lazier, Sutton-Smith and Zahn with the same children. They found that these children in drama presented fewer incidents but more details per incident than the younger group. In addition to these two findings, a third inter-media finding can be related to age.

This might be a productivity or quantity factor. It can be seen that the older children drew more incidents, used more of the page for their drawings, drew more things, used more colors, used large conceptions of space on the story, told longer stories, and made more acts on the drama.

The study of 2-5 year olds (Pitcher and Prelinger, 1963) revealed that within this age range the use of space increases, and the present findings expand that to the age of 12. What is more interesting, however, is the finding that the opposite occurs when it comes to actually utilizing space with the body. In the dramatic analyses (Lazier, Sutton-Smith, and Zahn, 1971), these same younger children traveled more (entered more squares when the floor space was divided into 9 squares) and actually covered more distance. In the present analyses, it was found that these younger children were rated higher on the body dimension which involved fluidity and looseness of body movement. Thus it can be stated that older children conceive wider spatial areas and can express this in a story and graphically, while younger children actually move over more space and are freer in their bodily movement.

Age Group Predictions

For the younger children only communication of Drama B could be predicted by the drawing variables. The indication here (see Table 7) is that drawing more people and more colors is related to a higher level of communication on the drama for the younger children. For the older children this aspect of dramatic performance was predictable by drawing things and incidents. It was also related to age, even within the 10 through 12 age range, with the older children scoring higher on the communication dimension.

Affect, body and imagination were also predicted by the drawing variables for the older children. These findings suggest that expressiveness on drawing and expressiveness on dramatic B variables are related for older children, but that for younger children the factors involved in these are more distinct. A further question which these results raise is the relationships among the performances. If the drawing experience can predict aspects of the acting experience for the older children, if only in terms of expressiveness, but cannot do this for the younger children, what might this indicate in terms of media choice? Are these forms more distinct for younger children? Are they more related for older children? A question regarding educational implications now becomes relevant. Can we lump all the arts together? Is it appropriate for schools to have children choose one art form or another? What is apparent from these initial findings, is that the art forms are probably quite distinct, certainly for the younger subjects, that performance on drawing is not related to performance on drama, and that further research is necessary in order to understand more fully how art and other expressive forms function for different children.

Variable Associations

As stated previously, the correlation analyses suggested that the individual art media were more internally related than they were to each other. This finding supports the choice of the media; each was a valid, separate form.

In discussing the relationships between the different media, three issues are relevant. (1) Which variables were most related to variables in other media? (2) What factors or unifying variables are suggested by examination of the total variable sample and the correlation results? and (3) Which variables might suggest further inter-media research?

The two variables correlated with the most inter-media variables were inner-complexity (story) and spatial (story); each of these had 8 significant correlations with variables from other media. # of words was the next with 7; Developmental (HFD) and Acts each had 6 significant inter-media correlations. It can be seen that the story variables were the variables most related to other media.

Inner-complexity of characters is a measure, according to Pitcher and Prelinger (1963), of the child's "awareness of internal complexity within himself as well as in other." Interesting, but not supported by the present results would be a significant positive correlation between this variable and people complexity in the drawing. The present findings showed a positive correlation, but this was far below the level of significance (r = .104; n = 22). It can be seen from those variables significantly correlated with inner complexity, most highly related to this variable was the drawing of things and incidents.

Those variables most highly correlated with the spatial variable were those related to verbal expression of emotions. The interesting finding here is that spatial is also negatively correlated with affect on the drama medium, indicating that affect on the drama, which involves not only verbal and non-verbal communication of feelings but involves the appropriateness and variety of emotions expressed, is not necessarily similar to expressing affect through the voice alone. An unusual finding is the negative relationship between spatial on the story and body. This indicates that, as with the younger and older differences in body and spatial, conceiving of space and expressing this in a story is totally (in these results actually opposite) different from actually utilizing space and moving one's body freely.

The positive correlation between the number of words on the story and four non-story measures of productivity is very important. What this means is there may be a factor -- quantity or productivity -- which cuts across the media. Subjects who have longer stories also draw more things, more novel incidents, use more of the page in drawing and improvise more acts in drama.

The developmental scale on the Human Figure Drawing test was significantly correlated with age. Age, as has been mentioned, is related to the spatial variable. Those scoring higher on developmental also scored higher on thing parts, thing complexity, thing parts and repeats, colors and spatial. It can be said that the older children showed more detail (thing parts, complexity, and repeats) in their drawing of things.

The number of acts in the drama media was correlated with number of words, people complexity on the drawing, inner complexity on the story, and three drama B variables, communication, involvement and imagination. (Drama A and Drama B variables were treated separately in the analyses). The relationship between number of acts, and the number of words on the story is further support for a productivity factor. That those scoring high in number of acts also tended to show greater detail in the drawing of people and in the description of people (inner complexity) indicates that quantity and quality in artistic media may be realted factors. This could be further examined to discover under what circumstances this is a valid finding.

Individual Profiles

By the conversion of each subject's media scores to standard scores, it was then possible to find each subject's mean standard score and thus have a ranking of subjects on total performance. Profiles for the highest and lowest subject on this total performance ranking are included in the appendix as are profiles for the highest and lowest scoring subject on each of the 5 media. In much the same way intelligence tests are constructed it would be possible for further research to devise an expressive test utilizing the procedure for these expressive profiles. Each profile for each subject in this study could be used in conjunction with either case studies or more extensive analysis of individual differences among children.

Conclusion

Although the males tended to do better on the drama variables (8 out of the 9 were higher but not significantly so) and the females tended to do better on the drawing variables (9 out of 14 were higher with only one of these significant at the .05 level), these findings do not indicate significant sex differences on the art media.

Age differences however, were more evident. While only 3 of 43 t tests were significant for sex, 8 of 43 t tests were significant for the age groupings. Regression analysis also indicated differences between the ages when drawing performance was used to predict drama performance.

The areas found to differentiate older (10-12) and younger (7-9) groups were (1) involvement with authority (the younger children using more time to resist the policeman on the drama and drawing him more often in the drawing), (2) details (the older children drawing more details on things and people and having more details per incident on the drama), (3) productivity (the older children drawing more incidents, using more of the page, drawing more colors and things, and having longer stories) and (4) use of space (the younger children using more space in the drama and moving more freely through space but conceiving of smaller areas of space in the story and using less of the page in drawing).

Of particular importance was the finding that for the older children drawing and drama were much more closely related than for the younger children. This finding indicates that for the younger children these media might be quite unrelated experiences. In order to stimulate and develop a variety of abilities, exposure to both art forms may be an important early aspect of the early childhood curriculum.

Whereas further research is needed to clarify more clearly these factors which have a developmental character, further investigation is also required to discover the inter-media relationships.

The story variables were most highly related to the other variables, with inner complexity of characters and spatial ranking highest. It would be important to further study those children who scored highest and lowest on inner complexity of characters, since it is not clear whether this is an age factor. (The present data indicated a slightly higher level of performance for the older children, but not a significantly higher level). Since Prelinger and Pitcher (1963) did find differences between ages 2 and 5, it would be important to clarify whether or not this factor is related to age. The other variables most highly related to variables from other media were the number of words, developmental (on HFD), and the number of acts. The numbers of words and acts relate to the productivity factor and the developmental scale is another measure of age. These have been mentioned.

In addition to investigation of those factors found to differentiate age groups and those variables highly related to variables in other media, further research might also be directed toward the individual child. As an aid in stimulating child-centered programs, as a diagnostic tool giving more considerations to creative andnon-verbal abilities, and as a research tool, the individual expressive profile is an instrument in need of attention. An expressive quotient or an artistic profile could be a valuable handle in the procuring of funds and other support for programs in the arts. It is my suggestion that the goals for using such profiles and quotients be child-centered; that we use them to understand the world of children, their art, and their expressiveness, rather than to control or direct them toward our own standards.

If we can conduct research and develop tools for education and mental health in keeping with the child-centered goals, then the introduction and expansion of a "social science of expressive forms" will be a new and different contribution to our professional realms, and not merely another division of our academic interests.

TABLE 1: Means and Standard Deviations for Male and Female Groups (with T statistic)

Variable	Male X	Female X	Male SD	Female SD	T	Significance Level	N(M)	N(F)
Loving	1.250	1.843	1.377	.907	-1.759	p < .1	8	16
Sad	3.000	2.687	1.535	1.123	.568	NS	8	16
Angry	3.812	3.187	1.997	1.236	1.237	NS	8	16
Happy	1.875	2.343	1.026	1.338	- .867	NS	8	16
Afraid	1.812	2.375	.530	.991	-1.490	p < .2	8	16
Emotional	2.111	1.761	1.364	2.047	.466	NS	9	21
Developmental	16.000	16.800	3.774	4.431	- .469	NS	9	20
Policeman	.800	.454	.421	.509	1.867	p < .1	10	22
# Incidents	3.200	3.909	1.549	1.376	-1.299	NS	10	22
Given Incidents	2.700	2.863	1.337	1.082	- .368	NS	10	22
Novel Incidents	.500	1.090	.849	1.064	-1.541	p < .2	10	22
People	2.700	2.863	1.494	1.386	1.796	p < .1	10	22
People Parts	38.700	19.000	23.636	17.652	2.630	p < .02	10	22
Things	3.500	5.090	1.779	2.635	-1.730	p < .1	10	22
Thing Parts	11.600	18.136	10.394	12.233	-1.463	p < .2	10	22
Thng.Prt.Repeats	14.100	18.954	18.835	20.732	- .630	NS	10	22
Parts and Repeats	26.700	35.863	27.576	26.526	- .895	NS	10	22
Colors	10.400	8.500	8.669	4.284	.837	NS	10	22
% Page	50.300	69.727	23.156	25.345	-2.061	p < .05	10	22
People Complexity	15.300	9.272	6.549	6.670	2.382	p < .05	10	22
Thing Complexity	3.600	3.454	1.429	1.010	.330	NS	10	22
Spatial	2.556	2.333	1.333	1.290	.403	NS	9	15
Main Figure	1.944	3.166	1.509	1.877	-1.654	p < .2	9	15
Inner Complexity	2.055	2.200	1.157	.861	- .349	NS	9	15
Active/Passive	2.888	2.166	1.431	1.144	1.363	p < .2	9	15
Realism	2.611	2.266	1.867	1.667	.468	NS	9	15
Action/Thought	2.000	1.800	1.030	1.130	.433	NS	9	15
Emotion	1.833	1.466	.935	.549	1.216	NS	9	15
# Words	62.000	62.866	4.916	3.689	- .047	NS	8	15
Enthusiasm	5.458	5.359	1.919	1.701	.155	NS	12	22
Involvement	6.150	5.472	1.104	1.533	1.347	p < .2	12	22
Affect	5.116	4.618	1.431	1.505	.938	NS	12	22
Communication	6.500	5.731	1.347	1.430	1.526	p < .2	12	22
Body	4.400	4.413	2.407	2.147	- .016	NS	12	22
Imagination	6.100	5.740	1.757	1.653	.592	NS	12	22
Repeats	26.250	23.409	27.246	19.264	.355		12	22
Acts	57.166	55.772	21.883	28.468	.147		12	22
Resist.Time	17.166	15.863	20.337	22.410	.167		12	22
Vocal Express.	13.000	12.312	3.370	4.475	.382	NS	8	16
Drawing	150.6	157.9	79.602	50.938	-.672		10	22
Story	15.88	15.4	4.321	[illegible]			9	15

TABLE 2: T tests for Younger(Y) and Older(O) Groups

Variable	Y Mean	O Mean	Y St.Dev.	O St.Dev.	T	Significance Level	N(Y)	N(O)
Loving	1.625	1.666	.711	.937	.122	-	12	12
Sad	2.416	3.166	1.224	1.212	1.509	p<.2	12	12
Angry	3.541	3.250	1.233	1.157	-0.597	-	12	12
Happy	1.875	2.500	1.180	1.296	1.248	-	12	12
Afraid	1.875	2.500	1.569	1.066	1.791	p<.1	12	12
Emotional	2.437	1.214	2.279	.892	-1.882	p<.1	16	14
Developmental	14.666	18.571	4.270	3.106	2.798	p<.01	15	14
Police	.687	.437	.478	.512	-1.426	p<.2	16	16
#Incidents	3.250	4.125	1.183	1.586	1.768	p<.1	16	16
Given Incidents	2.375	3.250	.957	1.183	2.299	p<.05	16	16
Novel Incidents	.875	.937	.957	1.123	.169	-	16	16
People	2.125	1.937	1.204	1.730	-0.355	-	16	16
People Parts	23.062	27.250	12.508	27.991	.546	-	16	16
Things	3.750	5.437	1.483	3.010	2.011	p<.1	16	16
Thing Parts	11.187	21.000	5.946	14.394	2.520	p<.02	16	16
Thng.Prt.Repeats	7.437	27.437	10.519	22.393	3.233	p<.01	16	16
Parts and Repeats	19.250	46.750	12.487	30.341	3.352	p<.01	16	16
Colors	8.125	10.062	3.964	7.397	.923	-	16	16
% Page	58.625	68.687	23.812	27.803	1.099	-	16	16
People Complexity	11.125	11.187	6.259	8.092	.024	-	16	16
Thing Complexity	3.125	3.875	1.147	1.042	1.950	p<.1	16	16
Spatial	[illegible].72	3.00	[illegible].904	[illegible].290	2.744	p<.02	11	13
Main Figure	27.72	26.53	20.16	17.125	-0.156	-	11	13
Inner Complexity	19.54	23.07	10.35	8.022	.893	-	11	13
Active/Passive	22.72	25.76	14.20	11.87	.571	-	11	13
Realism	20.90	26.53	15.78	18.41	.795	-	11	13
Action/Thought	19.09	18.46	13.00	8.98	-0.139	-	11	13
Emotion	16.36	15.76	17.10	17.59	-0.196	-	11	13
#Words	52.81	71.50	35.34	44.21	1.112	-	11	12
Enthusiasm	54.88	53.00	19.36	16.03	-0.308	-	17	17
Involvement	56.88	57.35	14.86	13.91	.095	-	17	17
Affect	50.52	45.35	14.36	15.16	-1.021	-	17	17
Communication	58.52	61.52	14.09	14.82	.605	-	17	17
Body	50.58	37.58	22.55	20.14	-1.772	p<.1	17	17
Imagination	59.52	57.82	18.21	15.62	-0.293	-	17	17
Repeats	21.000	27.823	21.808	22.316	.901	-	17	17
Acts	51.941	60.588	23.925	27.959	.968	-	17	17
Resist.Time	23.588	9.058	26.474	11.459	-2.076	p<.05	17	17
Vocal Express.	12.000	13.083	3.643	4.566	.642	-	12	12
Drawing	131.875	179.375	32.919	71.916	-2.402	p<.05	16	16
Story	14.363	16.615	5.084	2.814	-1.309	p>.1	11	13
Drama B	334	314.411	79.328	78.948	.721	NS	17	17
Drama A	72.941	94.764	43.463	53.217	-1.309	p<.10	17	17

Table 3

Variables Significantly Correlated
With Two or More Variables from Other Media

Variables

- Inner Complexity (Story)
  - things
  - thing parts
  - thing part repeats
  - # incidents
  - drawing total
  - novel incidents
  - acts
  - happy
- Spatial (Story)
  - sad
  - happy
  - VEE total
  - Developmental
  - Age
  - affect
  - body
  - resistance time
- Developmental (HFD)
  - thing parts
  - thing complexity
  - thing parts and repeats
  - colors
  - age
  - spatial
- # Words (Story)
  - # incidents
  - # things
  - novel incidents
  - thing parts
  - # acts
  - % page
  - Drawing
- Acts
  - communication
  - involvement
  - inner complexity
  - # words
  - imagination
  - people complexity
- Thing Parts
  - inner complexity
  - emotional
  - words
  - story
  - developmental

Variables

- Thing Parts and Repeats
  - age
  - inner complexity
  - emotion
  - # words
  - story total
- Emotional
  - thing parts
  - thing total
  - people parts
  - colors
- # Incidents
  - inner complexity
  - # words
- Novel Incidents
  - inner complexity
  - # words
- Body
  - spatial
  - loving
  - happy
  - VEE total
- Age
  - spatial
  - developmental
  - thing parts and repeats
  - thing repeats
- Resistance Time
  - spatial
  - main figure
- Sad
  - realism
  - spatial
- Communication
  - repeats
  - acts
- VEE Total
  - spatial
  - body

(continued)

Table 3 (continued)

Variables

Happy
  spatial
  inner complexity
  action, thought

Colors
  emotional
  developmental

Story Total
  thing part repeats
  thing parts
  thing parts and repeats

Thing Repeats
  age
  inner complexity
  # words
  story total

Variables

Drawing Total
  # words
  inner complexity

Repeats (Drama A)
  # words
  inner complexity

People Complexity
  enthusiasm
  repeats
  acts

Table 4

Distribution of Significant Correlations (both inter-media and intra-medium)

Total correlations: 752 (165 intra-medium; 587 inter-media and age)

Total significant beyond .05: 143 (85 intra-medium; 58 inter-media and age)

	VEE	HFD	DRAW	STORY	DRAM A	DRAM B
Vocal Expression of Emotions	11					
Human Figure Drawing	0	1				
Drawing	2	4	44			
Story	6	1	2	10		
Drama A	0	0	4	4	1	
Drama B	3	0	1	2	6	18
Age	0	1	2	1	0	0

Number of variables in each medium:

Vocal Expression of Emotions: 6 (includes media score)

Human Figure Drawing: 2

Drawing; 15 (includes media score)

Story: 8

Drama A: 3

Drama B: 6

Paper #14. STRUCTURAL PARALLELS IN DREAMS AND NARRATIVES

Developmental/Sex Differences in Dreams and Stories of Girls and Boys

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Introduction

This study proposes to investigate the developmental nature of stories, dreams and their relationship. It is also interested in how these phenomena reflect psychosocial and cognitive development. Secondly, it proposes to investigate sex differences in psychosocial and cognitive levels. The data for this study are the stories and dreams of 5-7 and 8-11 year old girls and boys. The measure of psychosocial development is Elkan's Eriksonian checklist. Elkan (1969) culled Erikson's works for references to his eight stages of psychosocial development and produced a list of 144 items. (Appendix II)

The measure of cognitive level is the Mahony Story Stages. Mahony (1976) looked at the relationships between and among the characters, objects and actions in children's stories and found a developmental sequence in cognitive organization. (Appendix III)

Review of the Literature

Since Freud, dreams have been seen as significant and reflective of intrapsychic life. Dream research, however, has been handicapped by a lack of explicit theory and methodology and by the rejection of manifest content as valid data. Also the focus of earlier studies tended to be on the nature of the children's dreams as a whole rather than on developmental differences between age groupings.

Freud's theory posits development as a process of fixed sequence where earlier forms may reappear later as well. Thus differences may be significant while there are similarities. Since Freud's stages are completed by age six, a developmental analysis of reported dreams would be difficult.

Erikson's theory added psychosocial modes of growth to Freud's psychosexual ones. Erikson's redefinition and extension of Freud's developmental theory to include the entire life span make such a developmental study possible.

Erikson's theory lends itself to a comparison of sex differences in psychosocial development, by placing importance on the context of a particular social order and the effect on development of society's response to the individual's struggle to adapt. His model lent itself to the methodology of the checklist by specifying, at each level of development, the nature of the social encounter and the nature and implications of the successes and failures as the individual struggles to adapt to the world around him. (Elkan, 1974, p.7)

The Elkan checklist was developed for use on the manifest content of dreams. Two studies (Reis, 1951; Sheppard & Karon, 1964) designed to test the hypothesis that results based on manifest content alone correlate well with results based on manifest plus latent content showed clearly positive results. Developmental differences in the manifest content of boys dreams have been documented by Elkan (1969), L. Mack (1974) and R. Mack (1974). In 1969, B. Elkan conducted a study to define developmental aspects of dream life using the manifest content of children's reported dreams. Using a checklist she constructed from Erikson's works, she systematically studied children's dreams and confirmed the hypothesis that a relationship exists between manifest dream content and developmental level.

Foulkes' studies of normal boys are relevant here for comparison with Elkan's and as a link between children's stories and dreams. Foulkes (1967, 1969) collected dreams in a dream lab from 4-6 year olds and 6-12 year olds. He describes the dream as realistic, related to everyday life and without disturbing affect or impulse.

Domhoff and Kamiya (1964) have shown laboratory dreams to be more mundane and realistic than recalled dreams. This suggests that children may selectively recall the most vivid and intense dreams although this is not the content of most dreams. L. Mack (1974) reviews Foulkes' findings and suggests that they are consonant with Elkan's. Both Elkan and Foulkes have a common ego analytic theoretical bias which may also account for the agreement of their findings. Foulkes states the most coherent interpretive framework for him is the dream as an ego process continuous with waking ego functioning. Erikson's theory also posits the concerns of waking and dream life as arising from the struggle to cope with and integrate one's personal, social and environmental demands.

L. Mack suggests that Elkan's more structured method of analysis results in clearer delineation of developmental differences between age groups than does Foulkes' more global and quantitative. (1974, p. 10)

R. Mack (1974) found developmental psychosocial differences between the dreams of American and Tunisian males. He suggested how these differences reflect the differing cultural emphases. The play research of Sutton-Smith (1968) and Sutton-Smith and Savasta (1972) suggests that differing cultural emphases affects the play behavior of American boys and girls. In the first study he shows that boys and girls are familiar with different (sex preference) toys and come up with more novel (non-standard) uses with these sex preference toys.

Sutton-Smith and Savasta (1972) summarized sex differences in game playing of 5-12 year olds and studied the play of three-year-olds and found similar sex differences. Boys preferred games where success is achieved "through active interference in the others' players' activities" and "for games permitting personal initiative" (1972, p. 2). Girls prefer games where competition in indirect and where rules dictate every move, games of internal elaboration and accomodation to another person. The study of three year olds shows that the sex differences described above are present even earlier. Although there were no sex differences in types of play (exploration, testing, imitation) there were clear sex differences in categories of play. Girls used "inclusion-exclusion" while boys used "attack" (1972, p. 5). In view of these sex differences in play and games documented from ages 3 to 12, we might expect to find similar sex differences in other expressive forms: dreams and stories. Erikson's emphasis on the social context of development suggests that his theory, as operationalized in Elkan's checklist, could measure such differences.

Erikson's Psychosocial Theory of Development

Erikson's theory can be understood as an elaboration of Freud's childhood psychosexual theory of development: the aspects of personality and psychosexual development that result from the interactions between the child's psychosexual development and the restrictions and demands of the child's particular sociocultural milieu. The psychosocial crises are part of the model in which the child progresses sequentially through a fixed "ground plan" of developmental tasks and crisis, with each task or crisis having its appropriate period of ascendancy. (Erikson, 1954, p. 52). According to Erikson, before this time the individual cannot fully be aware of or experience the critical alternatives relevant to the tasks or their resolution. During each critical period, the focus is on the relevant psychosocial "concerns," although both earlier and later concerns may be present. The experiences and strengths gained (or not) during earlier stages determines, to a great extent, the effective resolution of each new developmental crisis.

Erikson (1963, pp. 247-269) presents eight stages of psychosocial development spanning birth to old age. For a more complete description of these stages see Appendix I.

Stage I: Basic Trust vs Mistrust -- the fundamental task of this stage is the establishment of basic trust, learning to rely on the constancy of the outside world provided by the nurturing figure. This stage corresponds to

Freud's psychosexual oral stage. The infant's primary mode of relating to his environment is through his mouth: sucking, biting, being fed and as such involve the development of the capacity to get and receive what is given. An Elkan checklist example is number 76. Is the dreamer provided for by others, do others attempt to provide for him?

Stage II: Autonomy vs Shame and Doubt -- This stage corresponds to Freud's anal stage. The fundamental task of this stage is the gradual development of internalized controls over holding on and letting go made possible by muscular maturation. The achievement of these controls leads to the development of autonomy and a capacity for choice. An Elkan checklist example is number 54. Do any characters in the dream unleash or release hostile powers? For example, does anyone shoot a gun, throw a weapon or release a ferocious beast?

Stage III: Initiative vs Guilt (Erikson, 1963, pp. 255-256) This stage corresponds to Freud's phallic stage and the Oedipal conflict, occuring at about 4-5 years and is characterized by the intrusive mode of relating to the environment. "Initiatve adds to autonomy the quality of undertaking, planning and 'attacking' a task for the sake of being active and on the move..." (Erikson, 1963, p. 255). The conscience begins during this period and internalized observation, guidance and punishment. An Elkan checklist example is number 29. Is the dreamer in danger of bodily injury?

Stage IV: Industry vs. Inferiority -- This stage corresponds to latency when sexual drives are temporarily subdued. The child's sphere of activity moves from the home and family to the school and neighborhood. Peers become important as the child begins to develop a sense of cooperation and belonging, having a place in the social and work structures of his environment. An Elkan checklist example is number 42. Does the activity of the dream take place in school, above the level of nursery school?

Stage V: Indentity vs. Role Diffusion -- This stage coincides with puberty and adolescence. It is a time of inner turmoil and confusion about emerging sexuality, and concern about social and occupational goals. An Elkan checklist example is number 98. Is the dream concerned with the issue of proper recognition for function and status in society?

Stage VI: Intimacy vs Isolation -- The task of this stage of young adulthood is the risking of an individual's identity in sexually and emotionally intimate relationships with others and in commitment to one's work and beliefs. An Elkan checklist example is number 58. Does the dreamer prefer to be alone?

Stage VII: Generativity vs Stagnation -- This stage focuses on creativity directed towards "caring for," parenting, educating and leading the next generation. An Elkan checklist example is number 48. Does the dreamer need to be needed?

Stage VIII: Ego Integrity vs Despair -- This stage corresponds to the later years of life. The individual who has achieved ego-integrity has a respect and love for humanity, an acceptance of the necessity of his own beliefs and style of life as well as others'. With this acceptance of what his life has been and is comes an acceptance of death. An Elkan checklist example is number 17. Does the dreamer convey a sense of solidarity with all human beings?

Although Erikson's stages approximate chronological stages, he is adamant that each stage may appear in some form throughout life. The outcome of the struggles at each level are final in determining what the individual brings at the preoperational period of his theory of cognitive development and the 8-11 year olds at the concrete operational period. Mahony would expect the 5-8 year olds to be at Stage 3a: single plane reversals and the 9-11 year olds to be at Stage 3b: double plane reversals.

Since the theoretical approach of the scale makes the scoring of dreams unfeasible at this time, there will be no hypotheses regarding cognitive levels of dreams.

DESIGN AND PROCEDURE

Subjects: The subjects in this study were 56 children attending an "open classroom" public school. Their parents were mostly artists and professionals, in terms of socio-economic status, middle to upper middle class. The subjects were 28 girls and 28 boys divided into two age groups: 5-7 year olds and 8-11 year olds; each group contained 14 children.

Experiments: The collectors were all psychology graduate students at Teachers College who were spending at least one day each week at the school participating in a federally supported study of children's expressive development. They were all known to the children.

Procedure: Stories were elicited from children with the simple, unstructured request, "Tell me a story," the dreams by "Do you ever dream?", and if yes, "Would you tell me one?" Once a subject had begun, interventions were limited to encouragement when appropriate, such as "and then what happened?" Dreams were usually elicited after a child had told a story.

Sampling: Subjects included in this study were systematically selected when they had given both a dream with a story on the same day. All stories and dreams were typed, one on a page and drawn randomly for scoring.

Scoring: The randomly drawn stories and dreams were scored for psychosocial level according to an Eriksonian checklist devised by B. Elkan (1969). (Appendix II) The stories were scored by a cognitive structural story scale devised by Mahony (1976). (See Appendix III) The judges were unaware of the expressive mode of the item being scored and the sex and age of the author.

Scoring using the Elkan checklist was done by this experimenter and a master's level graduate student unfamiliar with Erikson's theory.

There were five training trials where each judge scored and then discussed from 5 to 10 stories and dreams from Elkan's sample and the aforementioned study of children's expressive development. The training stopped when 70% agreement was reached without discussion. No item was accepted unless scored positively by both judges.

Cognitive scoring, using Mahony Story Stages, was done by Dan Mahony and his assistant. They achieved 85% agreement.

Measures: The Elkan Checklist

The Elkan Checklist was used as the measure of Erikson's psychosocial developmental stages. A chart showing the references in Erikson's works corresponding to each checklist item can be found in Elkan (1969). The complete checklist can be found in Appendix II.

Each dream and story was read, then each question and item of the checklist was asked and all items scored positively were noted. Thus each dream may have more than one item scored as well as a score of the highest stage.

The following dream is from an 8 year old boy:

> It happened in the school. It had Bob, and Jeff and Richie in it. I went up some unknown stairs, I didn't know. There was a straw house, part of the school. I leaned against it and it fell in. It was real dark. They kept on running after me, trying to beat me up ("Who?") Bob and a few other kids I didn't know. I got out and I went down a few steps and I was out again. Then there was two girls standing outside the place, I thought they were guarding the place. They ran after me on the street -- somehow I got out on the street. They got me with a rope but I pushed it off. This really fast running guy with a really flat hat, he kept running after me. I was on a hill and it was snowing. I kept on running and falling and hiding. And after a lot of that happened it stopped ("No more to the dream?") No, just the same a little longer and then it stopped.

The following are examples of Elkan checklist items, how they reflect Erikson's stages and relevant quote(s) from the above dream scored for the item. "Is the dreamer in danger of bodily injury?" is item number 29. It reflects a concern with Erikson's Stage III: Initiative vs Guilt in which the fear of finding the genitals, and the body in general harmed is intensified. To quote from the dream of an 8 year old boy: "They kept running after me, trying to beat me up..." "They ran after me on the street... They got me with a rope..." These are two instances of a positive scoring on item 29.

Stage IV: Industry vs Inferiority is concerned with changing the focus from home to neighborhood and school and thinking of oneself playing and learning without supervision. The following items reflect this concern: Item 42. Does the dream take place in a local neighborhood, as opposed to home, but not under the guidance of older children or elders? Item 44: Does the activity of the dream take place in school, above the level of nursery school? The same dream from an 8 year old boy begins; "It happened in the school. It has (he names classmates) in it." To answer question 42, we need to look at the whole dream to see that the action does not take place under the guidance of the older people.

"The highest stage of development at which a child scored was considered to be the child's developmental level, even though earlier crises were present or even predominant in the dream. The rationale behind this is rooted in the nature of Erikson's theory of psychosocial development. Erikson sees development as a process in which the organism evolves through successive stages of growth, each characterized by its own central crises. The child's developmental stage is defined by the latest level of achievement attained; aspects of earlier stages may be present to some extent, either as unresolved conflicts or ongoing concerns, but conflicts relevant to later stages of development will rarely be noted. Thus, in any given dream several stages of development may be represented in the manifest content; the highest level scored is considered to reflect the child's level of development." (L. Mack. 1974, pp. 36-37).

RESULTS

This chapter contains an analysis of the results of the study. The dreams and stories of the 5-7 year old girls and boys and the 8-11 year old girls and boys were scored as described in the last section and the Fisher exact test was employed to determine whether the differences in psychosocial and/or cognitive developmental level by sex, age and/or mode (dream/story) were significant. The distribution of highest scores was determined and then the Stages were collapsed into two groups I-III, IV-VIII. It was necessary to collapse the scores this way for a 2x2 contingency table for the Fisher exact test and to maintain the critical stages of III & IV in separate cells.

All significant levels were derived from tables of Fisher exact tests in Non-Parametric Statistics (Seigel, 1956).

These tests are recommended especially when expected cell frequencies may be less than five which renders a chi square test inappropriate.

Restatement & Test of Hypotheses: Results of this Study

1. The hypothesis that psychosocial developmental levels reflected in the manifest content of children's stories and dreams would not differ for sex or age by mode was supported. Dreams and stories reflect the same psychosocial developmental concerns; they were scored for the same highest Eriksonian Stage.(See Table 1 & 2)

2. The hypothesis that psychosocial level would differ by sex, especially for the older group with girls at Stage III and boys at Stage IV was supported at the .025 level of significance for 8-11 year olds. (See Table 2)

3. The hypothesis that cognitive levels reflected in the manifest content of stories would differ by age with older children at a higher level and no sex differences was supported. (See Table 4)

Table 1

Comparison of the Frequency of Psychosocial Development Levels (Highest Stage Scored) of Children's Stories and Dreams by Age and Sex

	Mode	Age	Sex	Level:	1	2	3	4	5	6	7	8
A	S	5-7	M			1	6	4	2			1
	D						9	3	1	1		
B	S	5-7	F		1		8	3	1			1
	D				2	1	7	3	1			
C	S	8-11	M		1		4	4	1	2	1	1
	D					1	4	5	3	1		
D	S	8-11	F		1		9	1	1		2	
	D					1	10	2				
	TOTALS				5	4	57	25	10	4	3	2

Table 1 shows the highest Eriksonian stages scored for each story and dream by sex and age. Rows A, B, C, D, arrange the frequencies of highest stage scored for the comparison between stories and dreams for each age and sex. As can easily be seen they are very much the same.

Table 2

2 x 2 Contingency Tables for the comparison of Highest Eriksonian Psychosocial Development Stage scored for boys and girls by age and mode.

5-7 yr. old stories

	Girls	Boys
III or lower	9	7
IV or higher	5	7

5-7 yr. old dreams

	Girls	Boys
III	10	9
IV	4	5

8-11 yr. old stories

	Girls	Boys
III or lower	10	5
IV or higher	4	9

8-11 yr. old dreams*

	Girls	Boys
III or lower	11	5
IV or higher	2	9

(*significant at .025)

Table 2 shows the comparison of frequency of highest stage scored between groups for age and sex. These are the contingency tables with stages I-III & IV-VIII of Table 1 collapsed for use of the Fisher exact test. Looking at these tables, only in the comparisons between the 8-11 year olds are there differences, with the boys more at Stage IV and the girls more at Stage III. According to Erikson's Theory this difference should not be significant. By the Fisher exact test only the dreams of 8-11 year old girls and boys are significantly different at .025, with the stories showing the same trend.

Table 3

Comparison of Frequency of Cognitive Levels in Stories of 5-7 year old and 8-11 year old girls and boys.

Mahony Story Stages

		2b	3a	3b
5-7	Girls	5	8	1
	Boys	1	11	2
8-11	Girls		1	12
	Boys		1	11
TOTALS	5-7	6	19	3
	8-11		2	23

Mahony Story Stages

	3a	3b
5-7	25	3
8-11	2	23

Table 4 shows the comparison of boys and girls at each age level at each Mahony stage. There is very little sex difference here; age is the variable differentiating between stages.

DISCUSSION

The hypothesis that stories and dreams would reflect the same level psychosocial concerns was supported for both sexes and age groups. Stories and dreams can be seen as two expressive modes of fantasy, forms of play. These children, boys and girls, at each age, reflect the same psychosocial developmental concerns in their stories as in their dreams.

It has been suggested that in the delay in reporting a dream, from the unconscious to the conscious, some aspect is lost. L. Mack (1974) has shown in her comparison of dreams reported upon awakening in a dream lab, mostly about everyday occurrences (Foulkes, 1967 & 1969), and dreams reported later (Elkan, 1969), that both kinds of dreams show concerns with the same psychosocial issues. These findings, coupled with those of the present study, suggest that the psychosocial concerns of children are manifested similarly in their unconscious (dreams) and conscious (stories) expressive productions. This similarity is not manifested in the cognitive organization of these phenomena.

The Mahony scale, developed for analysing cognitive organization in stories, could not be used effectively for dreams which we attempted to analyze sometimes appeared to be at a lower level, and sometimes at a higher level, but the organization could not be adequately mapped by the scale. These findings suggest that stories and dreams differ in their cognitive organization while showing a similarity in psychosocial developmental concerns.

The hypothesis that the cognitive levels of stories would show significant age differences and no sex differences was supported.

The hypothesis that the girls would show prolonged concern with Stage III, Initiative vs Guilt, was supported for 8-11 year old girls' dreams, with a parallel trend for the stories. The 8-11 year old girls and boys were scored for many of the same items indicating that the aspects of their concerns and the sequence of ascendency are similar. It is rather the lack of Stage IV responses from the older girls which accounts for the difference and suggests an over involvement with Stage III, Initiative vs Guilt.

According to Erikson's Theory, Stage III -- Initiative vs Guilt, concerns pleasure in attack and conquest and feeling competent, which may be seen as balancing the loss of an exclusive attachment to the mother and the guilt, fear and resentment over the competition and conflict with the same sex parent for the opposite sex parent. Girls in this culture are not encouraged, as boys are, to be aggressive or to take the initiative. Perhaps the initial negative feelings towards the self (guilt) and toward the same sex parent are being displaced by the boys and discharged in their vigorous activity: "attacking" a task, being "on the move." This type of activity is generally unacceptable for girls, especially preadolescents, as are the 8-11 year olds in this sample. It may also be that girls, constrained socially from taking initiative actively, become more involved with the guilt (as well as fear & resentment) over the competition and conflict (oedipal) of this stage. Since prior to this stage, both girls and boys are attached to the mother, it is perhaps more difficult for the girls to be suddenly in competition with the mother on whom she is still dependent.

In both a summary of sex differences in game playing of 5-12 year olds and a study of play of 3 year olds (Sutton-Smith & Savasta, 1972), sex differences are found which (1) support the notion of differential cultural emphases being placed (taught) to girls and boys, and (2) suggest how these differences relate to sex roles. Games preferred by boys 5-12 years old, include those where success is achieved "through active interference in the other players' activities" and "for games permitting personal initiative" while girls prefer games where competition is indirect and where rules dictate every move. (Sutton-Smith & Savasta, 1972, p. 2).

These authors studied the play behavior of 3 year old girls and boys from professional or semi-professional families to see if these differences were present earlier. Although there were no sex differences in types of play (exploration, testing, imitation), there were clear sex differences in categories of play. Girls used "inclusion-exclusion"; "controlling others by threatening exclusion," offering inclusion" "physically through smiling, giving gifts, verbally through requests or by asking for a turn, and strategically through appeals to status, distraction to others as targets and reasoning (1972, p. 5)." Boys used "attacks": physical, verbal and strategic, i.e., "portraying to another child a fantasy of what will happen to him if he doesn't comply (1972, p. 5)." There were no differences on authority, supplication, or child-adult power usages or in physical, verbal or strategic modes. Rather there was a distribution across all three modes in the boys' use of attack and the girls' games of inclusion and exclusion.

From a societal perspective, these authors suggest that boys are playing games of those who expect to be powerful or at least compete for power while the girls play games of internal elaboration and accomodation to the other person. The important consideration of boys is the battle for power and for girls sociability and inclusiveness. The authors suggest that these characteristics are probably essential to powerlessness, rather than to femininity as such (1972, p.3). These findings show clear sex differences described in Stage III of Erikson's theory.

The strength and continuity of these differences in attack and vigorous behavior and Erikson's emphasis on initiative as a "necessary part of every act" (1963, p. 255) suggest both the existence of these differences in play stories and dreams and the difficulty girls may have in resolving the conflicts and tasks of Stage III, Initiative vs Guilt.

The sex difference suggests a cultural/social effect as well as that documented (L. Mack, 1974) of socio-economic status on the rate of development through the stages of Erikson's theory. R. Mack (1074) in his cross-cultural developmental study of American and Tunisian males' dreams, confirmed the sequence of development according to Erikson's theory, but not the chronological ascendence, and attributes the "developmental" differences to cultural/social factors. The findings of this study corroborate R. Mack's. Although boys and girls are growing up in the same culture, social factors affect sex differences in psychosocial "development."

The results of this study for boys basically corroborate Elkan's (1969) findings and Erikson's theory. There is a trend toward developmental shift from 5-6 to 8-9 although they are not significantly different as Elkan's were.

Almost all instances of items at Stages II & III were present for girls and boys suggesting they are both on the same Eriksonian developmental continuum, with girls behind the boys. Socio-economic status was measured by father's occupation. The subjects of this study were upper middle and middle class, while Elkan's were all upper-middle. Considering L. Mack's findings that her subjects of lower socio-economic status were at least one level below Elkan's and therefore below Erikson's chronologically age appropriate stage, the findings of this tudy could be anticipated to fall between them as they do. These findings support the notion that Erikson's theory was developed, in terms of chronological/stage relationships, on upper middle class boys and any deviation by sex or socio-economic status will result in a divergence from Erikson's expectations.

CONCLUSION

The findings of this study confirm Erikson's sequence of developmental stages while questioning the chronological age/stage relationship he suggests. The Elkan checklist was found to be a useful, valid measure of Erikson's developmental stages.

Of particular interest and most important for this study, the findings confirm these hypotheses: 1) Dreams and stories are parallel reflectors of psychosocial concerns of children. 2) There are statistically significant differences between the psychosocial stages of 8-11 year old boys and girls dreams: The girls' concerns are at a lower level than boys' showing an extended involvement with initiative, guilt, and aggression and suggesting a lag in resolving the conflicts related to these issues. 3) There are statistically significant differences in the cognitive organization of stories by age and not by sex. The differences in cognitive organization between dreams and stories are such that dreams could not be analyzed with the story measure.

The similarities in psychosocial concerns in these dreams and stories, and the differences in cognitive organization, suggest an important and interesting focus for further research. This study demonstrates the need for more serious exploration of girls' development in particular and psychosocial development sex differences in general. This study also suggests the value of fantasy phenomena and play and game research as resources for this endeavor.

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Paper #15

THE EFFECT OF MEDIA INFLUENCE ON THE STORY-TELLING OF FIRST GRADERS:

A PILOT STUDY

Gilbert Botvin

A brief perusal of a sample of 44 stories created by 17 first graders revealed a manifest media influence. That is, in a surprising number of the stories collected in this sample there seemed to be a noticeable intrusion of a variety of items directly or indirectly traceable to the media (primarily Television) For the purposes of the present pilot study only the most clear-cut and obvious illustrations of the intrusion of media items on the stories created by our subjects were considered. These media intrusions took several different forms. In the most notable of these, for example, our fledgling raconteurs employed a plethora of TV heroes and villains as leading and supporting characters as well as assimilating into their stories (at times rather artfully) segments of popular songs, commercial jingles, TV themes, commercial slogans, and dialogue cliches. Others merely made reference either generally or specifically to TV shows, popular commercials, or the activity of watching TV.

In general, the procedure followed in this study was rather simple. First, analyze the entire corpus of stories for any clear-cut evidence of media influence. Second, categorize the various media items or elements typologically. And third, tabulate and compute the frequency of occurence of each of the various types of media items.

Upon analyzing the stories for evidence of media influence, the resulting media items seemed to form the following categories: Media references, media characters, and media cliche forms. The first category included all instances of media reference, i.e., instances where there was either a general or specific reference to TV viewing or specific TV programs, or reference to a commercial product frequently advertised on TV. The second category included all mention or use of TV characters in the plot-complexes. The third general category included all instances of assimilation of media cliche forms into the dialogue or narrative of a story. Some of these cliche forms were assimilated in their original form while others appeared in novel or transposed form.

Description of Categories

REFERENCE

A. General Media References. This is probably the least interesting type of media influence found in our story sample. It was formed merely to group all instances of vague or general reference to TV, i.e., the medium itself as opposed to particular TV programs. In addition, any references to the activity of viewing or watching TV were included here. Rather than illustrating the profound impact of TV -- the content of TV -- this category of media references provides an indication of the importance of TV as something pleasureable to do, something children regard as fun. Some examples of the kind of references included under this heading are: "they watched TV," "they turned on the TV," and "they turned off the TV."

B. Specific Media References. This is merely an extension of the above category, but it attempts to focus more on particular shows, kinds of shows. In other words while the above category focused on mere references to TV or the activity of watching TV, this category of media references focuses on the actual content of TV, TV programming. These references may be either very broad, a type of TV show or movie (e.g., Westerns), or it may be quite specific (e.g., "The Night of the Vampires"). Reference may be made either directly by naming the TV program or indirectly where the content of a subject's story is clearly and explicitly drawn from a particular show (e.g., stories based on "Kung Fu").

C. TV Commercial Reference. There were a number of references to specific TV commercials, but without quoting parts or segments of the commercial.

In most cases this occurred by making reference to the product name of a popular or well-known commercial (e.g., Ajax, Pampers, Pepsi). It is perhaps open to debate whether in all cases these references were actually a result of media conditioning, that is, a direct result of watching TV. However, these references were directed at commercial products that are all heavily advertised on TV, and it is unlikely that anyone watching TV for even a few hours would escape being told about the wonders of new, improved Ajax, or fail to catch himself humming the contagious refrain of the Pepsi jingle. In addition to references to commercials of heavily advertised TV products, information contained in public service commercials was also included (e.g., "911" as the Police emergency number).

MEDIA CHARACTERS

This was the easiest category to score. Any use or mention of a media characters was included, and they were considerable. There was one major constraint followed when computing the frequency count: a particular character was counted only once in each story regardless of the number of times his name appeared. For example, if Mighty Mouse's name would appear twelve times in a given story it would still be counted as one. It was thought that this method of scoring would give a more realistic view of the popularity and importance of these various characters. Therefore, the scores for each character represent the number of times they appeared in different stories.

Some of the characters mentioned in these stories were TV movie characters (e.g., Humphrey Bogart, John Wayne), but for the most part they were monsters (e.g., Frankenstein, Wolfman, Godzilla) and superheroes (e.g., Superman, Boy Wonder, Flash, Batman). These characters were cast in a variety of roles: in one story one character may be the villain, and in another the hero; in one story he may be a leading character, and in another a mere supernumerary. But in any case these characters are nearly all, with few exceptions, either from cartoons or Saturday morning TV.

MEDIA CLICHE FORMS

A. TV Cliches (Original). An interesting discovery upon analyzing the current sample of stories was that many stories contained TV cliches, i.e., segments of well-known commercial jingles, slogans, TV themes, dialogue cliches. In other words, a number of the tales woven by our children assimilated popular catch-phrases commonly heard on TV. Some examples include: "What's up, Doc?" (from Bugs Bunny), "Hey Jerry, what's the story?" (from JGE appliance commercial), "Bounty, the super picker-upper!" (from Bounty paper towel commercial), the theme (music without lyrics) to the Bugs Bunny show, "W-e-o-o!" (from the A & P commercial). For the most part, these were all performed in a manner quite close to the original TV ads, both in terms of pitch, rhythm, and voice inflection.

B. Song Segments (Original). In addition to the kind of TV cliches described above, segments of popular songs in one way or another were assimilated into the stories we studied. In some cases only a catch-phrase from the song might find its way into the story (e.g., "Bye, bye, Miss America Pie"), while in a number of other cases segments ranging anywhere from two lines to two verses might be used. These segments, especially the longer ones, were generally performed -- and were quite recognizable. And in the cases when the song segments were not sung at least the fundamental rhythm of the line was preserved. "Bye, Bye, Miss America Pie" appeared the most frequently (3 times) and it was generally used to terminate an episode -- even if the termination were not a natural one. That is, even if the story-teller were in the middle of an episode he might use "Bye, Bye, Miss America Pie" as a convenient terminus rather than bother to construct a natural resolution or a comprehensible denouement.

C. TV Cliches (Transformed). In addition to the category of TV cliches discussed above there were some cases in which the story-teller would draw upon TV cliche material but the cliche would be slightly altered. That is, they would take a well-known media item and either improvise on it or do a parody of it. These improvisations or parodies fell into two distinct groups: (1) spontaneous and (2) rehearsed. The spontaneous improvisations were easily recognizable because they were generally much shorter and considerably less felicitous. For example, a spontaneous improvisation on the Listerine ad went: "You oughta use Listerine for your eyeballs." Or an improvisation on the JGE commercial: "Hey Jerry, what's the story?" And the baby said, "You're not Jerry, you're screwball." And then he said, "That's the story, Jerry." . . .

On the other hand the items that fell into the category of rehearsed improvisations were rhyme parodies known to apparently all the students in the class (if not the school). These were longer and in general more coherent than the spontaneous improvisations. For example,

I dream of Jeannie
Swimming in her bikini
Sucking on her wiennie
And watching her bikini. . .

Or,

Comet, it makes your mouth so clean
Comet, it tastes like gasoline
Comet, it makes you vomit
So buy some Comet and vomit today!

Therefore, these improvisations could range from changing one or two words in a TV cliche to the creation of an entire rhyme parody.

D. Song Segments (Transformed). The analysis of our story sample also revealed improvisations of the Song Segments discussed above. These improvisations were not musical but were lyrical. In other words, the lyrics to these song segments were not presented intact; the lyrical form of the song segments were violated. These song segments were modified (as with the TV cliches) in one of two different ways. Either they were spontaneous, the result of momentary caprice; or, they were replaced by established parodies known to the entire class. For example, an improvisation on a song entitled "Jeremia Was a Bullfrog" recorded by Three Dog Night went:

If I was the King of the world,
I'd tell you what I'd do
I'll lay a fart and blow you apart
And that's the end of you. . .

Or a spontaneous improvisation assimilated into the dialogue appearing after one character sang, "I've been working on the railroad."

I was working on my hou-ouse. . . .

In each of these cases the song segments were sung, often with much gusto and enthusiasm.

Results and Discussion

The impact of the media on the 44 stories in our sample was extremely varied and rather inconsistent. Of the 44 stories comprising our sample, half were contributed by boys (N = 10) and half were contributed by girls (N = 7). In view of the vast amount of anecdotal evidence attesting to the profound influence the media, in particular television, has on both children and adults it was not surprising to find some media influence on the stories of the children in our sample. In fact, there was evidence of overt media influence in only 12 of the 44 stories (roughly 28% of the total sample). This is rather unimpressive and somewhat less interesting than anticipated. The apparent inconsistency of the manifestation of media items in the corpus of stories at first leads one to suspect that this is a fortuitous matter at best. Yet when the analysis proceeds with respect to possible sex differences the picture changes radically. The difference between the incidence of media influence in the stories of girls and in the stories of boys is rather dramatic. For example, the stories told by the girls in our sample were conspicuously devoid of instances of media influence. In fact, of the 93 instances of media influence tabulated from the entire corpus only one instance appeared in the stories told by the girls (less than 2%0. Over 98% of the instances of intrusion of media items in the stories of this sample appeared in the stories told by the boys! Table 1 summarizes the instances of media influence according to the eight categories delineated above.

INSTANCES OF MEDIA INFLUENCE

Table 1

Type		Girls	Boys
Media References			
A. General		1	5
B. Specific		--	4
C. TV Commercial		--	7
	Total	1 (5.8%)	16 (94.2%)
Media Characters	Total	--	48 (100%)
Media Cliches			
A. TV Cliches (Original)		--	10
B. Song Segments (Original)		--	7
C. TV Cliches (Transformed)		--	6
D. Song Segments (Transformed)		--	5
	Total	0	28 (100%)
Total Media Influence		1 (1.8%)	92 (98.2%)

SUMMARY

PROJECT NO. 3-4015

GRANT NO. NE-G-00-3-0133

THE ENCULTURATION OF THE IMAGINATIVE PROCESSES BETWEEN THE AGES OF FIVE AND SEVEN YEARS AND THEIR EFFECT UPON CLASSROOM ACTIVITY

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September, 1976

The research reported herein was performed pursuant to a grant with the National Institute of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official National Institute of Education position or policy.

U.S. DEPARTMENT OF

HEALTH EDUCATION AND WELFARE

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I. Aims

The present study took as its original focus a particular initiation rite which occurs between the ages of four and seven years. At that time, the child emerging from his family with fantasies and feelings largely determined by that source, is subjected to the socialization pressures of media and school. In particular, in this study we were concerned with pressures to adopt the forms of the public imagination as revealed in legend and myth. We wanted to know how the child's private fantasies become structured by public fantasies and how this helps or hinders the growth of his or her own imaginative processes. The problem was a new one and although we hoped to develop techniques for assessing imaginative processes in the child, and techniques for assessing the structured forms of lore that would confront him, and then finally develop techniques for studying the effects of schooling on both of these, our accomplishment has been somewhat more modest. And yet, if we consider that the immense body of information on initiation rites in early adolescence was not the result of any one study, but an accumulation of data over many many decades, we believe we have made a valuable beginning for new work in this area. It was our contention that unless schooling preserves continuity between the child's own imaginative processes and those of the normative culture, then this potential motivational source of growth in school must lie fallow. We assumed that the fate of most minority groups in Westernized schools provided sufficient documentation for this thesis. It was our task to discover in detail some of the processes at work, so that our study might lead to the adoption of more effective schoolroom procedures to manage the transformation from private fantasy to public legend. Obviously this was an undertaking too large for any one project or any single three year period. What is reported here, therefore, as a final report, for this grant period, is at the same time only a progress report in the chief investigator's twenty year search for the understanding of expressive phenomena in the development of the child. These expressive phenomena include play, toys, games, graphics, plastics, movement, music, narrative, improvisation, and film making.

II. Theory

The present work begins with a research review and theoretical overview of the character of play which has been titled The Dialectics of Play. What is presented here is the theoretical section of a book which will have this name and is being published by Verlag Karl Hoffman, Schorndoff (in press). In discussing imaginative processes in the present work, the position is taken that these are only an extension of and an internalization of what is normally known as play. Imagination is play inside the head and it begins to become an increasingly important play form at our age level four to seven years. We, therefore, do not make a great deal of the distinction between play and the imagination in this study. The research readings which accompany the "Dialectics" book in publication are not included in this report except where they are specifically relevant to this undertaking. Central to the argument in The Dialectics of Play is the view that play has both a distinctive structure and a distinctive function. The assertion that play has a dialectical structure will be seen to have strongly influenced the studies on games that are presented here, and to have influenced some of the studies on narrative. The exceptions will be discussed as we proceed. The theory of play's function as adaptive potentiation however, is felt to be relevant to all the processes discussed in this work. It is argued from our review of literature that play and the imagination anticipate future possible behaviors. In the expressive areas novel ideas and organizations of experience are first brought into being or made potential. Subsequently some of these organizations are incorporated into everyday adjustments, so that what was only a potential for adaptation becomes finally a form of adjustment. This theory of *adaptive potentiation* has important implications for education because it contends that growth of a flexible sought begins in play and imagination. The implication is that if education is to be concerned with the production of innovative behavior, it must begin with the cultivation of play and imagination. These arguments are detailed in the book. They add strength to our view that the period from four to seven years when the imagination becomes increasingly differentiated from overt play, is of critical importance in child development and schooling.

III. Method

Following this theoretical treatment the methodological section deals with kinds of data collection, and methodology that have been used in this research. The major study described in this section, however, by L.W. Petersen is a test of the adaptive potentiation theory as well as an examination of the effects of varying kinds of stimulus situations on particular imaginative responses.

IV(A) Results: Games and narrative

The results section of this report deals chiefly with our findings on the nature of structural developments in two expressive phenomena, games and narrative, but some attention is given also to interrelationships between expressive phenomena and to socialization effects. If the imagination potentiates development, and if development is sequential, then it should follow that it is possible to make statements about developmental sequences in various forms of expression. With the exception of work on children's art, the aesthetic literature is minimal on developmental statements about various forms of creative self-expression. This lack is due to a deeply puritanic strain in Western thinking to be found in both Freudian and Piagetian theory according to which fantasy and the imaginative are not formative factors in human development, but are only epiphenomenal in their significance (Sutton-Smith, 1966). It is not possible to assess the development of four to seven year olds, or to relate their developments to various socialization influences however without having first established reliable measures of the expressive phenomena and their developmental course. It is undoubtedly the major accomplishment of present study to have established such reliable measures of development in the area of *narrative development* and to have shown therefore that play and the imaginative life have their own structured sequence of development. The bulk of this report therefore is devoted to our work with children's imaginative story creations. Although this represents only a minimal amount of what has yet to be done in the area of expressive development, it is a significant accomplishment in itself.

Prior to working with narrative , however, two developmental and cross cultural studies were carried out on children's games in order to seek out universal parameters of development in these phenomena. The results of these studies are presented in two papers by the principal investigator (a) Games of Order and Disorder (b) A Structural Grammar of Games and Sports. The ages covered in these papers and in the following studies of narrative involve a much wider range than four to seven years, but it seemed essential first to establish the larger parameters for these developments in expressive forms before focussing on the specific age level of four to seven years. These papers now make it possible to assess behaviorally the developmental level which a child can maintain in games and compare that with the developmental level that he or she can maintain in narrative. This next step has not yet been taken by these investigators.

(B)

The study of narrative can focus on linguistics, style, tension symbolism or plot (Colby, 1975). The present studies concentrated largely on plot structures. In the pages that follow we present a series of analyses of plot structure. They are as follows: (1) Our first analysis was based on a system developed by the Marandas from the work of Levi Strauss. In this system the child in his plot development between the ages of 5 and 11 years goes through four stages across which his stories are transformed from plots in which no response is made to conflict, through two intermediate stages (of failure and nullification) until a final stage in which the hero overcomes his problem and transforms the original situation permanently. The accompanying article "The importance of the storytaker: an investigation of the imaginative life" Urban Review 1975, 8, 82-95, documents our theory and findings concerning this type of analysis.

Subsequently David Abrams discovered that the same system could be used to develop a structural account of the role of the Trickster in children's stories, and as a result to resolve some of the classic disagreements about the trickster. The trickster is a figure seen in the anthropological literature as either regressive or progressive in significance. What Abrams discovered was that younger children use the the trickster mainly in "regressive" ways, and older children in more "progressive" ways. This contribution of the material of child development to the resolution of problems in the interpretation of culture we have chosen to term genetic folklore. The results of this study are reported in the accompanying article: The development of the trickster figure in children's narrative. The Journal of American Folklore (in press). In an ongoing dissertation Abrams is studying the presence or absence of all the classic folktalke types in our corpus of children's stories. What this study appears to show is that certain limited classical themes such as the hero tale, trickster tale, animal tale and romance are related to age development psycho-sexual conflicts (after Erikson) and may be seen as forms of active imaginative response to those dilemmas. Given Gardiner's (1971) demonstration that story manipulations can be used to assist the development of self concept, the potentiality of a normative account of the way in which normal children proceed in the attempt to organize major conflictive areas of their life has extremely important educational promise. It certainly belies the traditional neglect of spontaneous storytelling in the school curriculum.

(2) Our second analysis, based on the units of action in stories,

rather than the relationships between characters, was pursued by Gilbert Botvin. This type of approach derives from the work of the Russian Folklorist Vladimir Propp. A first schematic account of the structural system developed by Botvin for this project is outlined in the article below, Developmental Structures in Fantasy Narratives, Human Development (in press). An empirical analysis based on Botvin's eight stage theory is presented in the article: The development of structural complexity in children's fantasy narratives, Developmental Psychology (in press), and the massive coding system that was developed by Botvin for this study is presented in the accompanying paper: A syntagmatic approach to children's fantasy narratives. As in the case of the hero and trickster analysis once again there are clearly demonstrated age progressions in the materials analysed. In the present system, however, the analogy is more tightly drawn between this conception of structural analysis and the kind of structural analysis to be found in linguistics. There are interesting and provocative parallels between the two, which should contribute most importantly in future research to our understanding of the relationships between language and cognition. In an ongoing Ph.D. dissertation, Botvin has used a computer program to analyse the constituents of stories (as he has conceptualized them) from a larger sample of subjects than is presented in the accompanying articles.

(3) The third system of analysis that has developed out of this project, has as its basis certain assumptions drawn from Piaget about identity, constancy, reversibility, reciprocity, etc. This system, invented by Daniel Mahony, is still in the developmental stage, but its general character is indicated in the accompanying article: Developmental Structures in Fantasy Narratives. The elements developed to that point were used in the Petersen thesis mentioned above and proved highly reliable in distinguishing between the experimental conditions in a population quite different from that from which it was derived. A second article extending some of these notions by Mahony, The Geography of the Story World, is also included here. The more critical importance of the Mahony system in the present study however, has been its ready applications to more than one expressive medium, a matter to be taken up in the next section.

(C) The Expressive Profile

A major theoretical assumption of this study was that if adequate measures of structural stage could be developed, within each media, then it should be possible to apply these across different medias, so as to draw individual profiles of the interrelationships between the various expressive media. This problem which was enunciated in an earlier work (Sutton-Smith, 1972) was begun under the aegis of an earlier grant in which children's development in improvisation was studied (O.E. 2-9-420032-1021-010). After the termination of that grant, however, work continued on the problem of the expressive profile with a preliminary study of the relationships between improvisation, drawing and storytelling for the same group of children. The results of this study are set forth in the accompanying paper by Amy Miller: The Expressive profile across improvisation, story and art. Although extremely complex and somewhat tentative because of the small subject population involved, these results indicate fairly clearly that the expressive profile varies with age. That is, the interrelationships within and between expressive media change with age. It seems that at the earlier age level of seven years, the different expressive forms are more distinct from each other than they are at the later age level of 12 years. The multiple relationships are so many and so complex however, that in the more recent work within the present grant period we have been content to examine these inter-media relationships across two media at a time. It would seem that considerable pioneer work of this sort will be necessary in order to establish reliable measures, before a return to the multiple variable type analysis which we attempted in our first analysis.

In the accompanying paper: Developmental and sex differences in dreams and stories of boys and girls Marylou Caring explores the interrelationships between reported dreams and stories. Using the Piagetian based Mahony system mentioned above, she did not find differences in developmental level between a child's dreams and stories at the same age level, and she did not find differences between the sexes. However, using an Eriksonian derived scoring system she did find sex differences between dreams at the two age levels with the boys' scores significantly more advanced in Eriksonian crisis stages. While her work in this area of sex differences continues into her ongoing dissertation, the important subsidiary point for the present is that the structural types of analysis mentioned above are more resistent to cultural differences (in this case of a sex role sort) than are measures which directly reflect cultural crisis concerns such as those drived from Erikson. It is tempting to consider that one method of analysis has to do with cognitive structures and the other has to do with social contents. More importantly, the subtle way in which the conceptual system of analysis may interact with the varying expressive media (dream or story) to complicate understanding is highlighted by this finding.

In another ongoing study by Sara Zarum and Dan Mahony in which stories told are compared with the films made from these stories, we have found that the younger children (5-8) years simply cannot manage the relationship, and the story told has only a tenuous relationship to the film that is made, whereas by eleven years the children rather too rigidly tend to follow the story step by step as if the filming process is completely wedded to the narrative they have made previously. Adolescent film makers often prefer to dispense with such controls, allowing their own visual imagery to lead the narrative.

From these few studies we believe there is a goldmine of information to be discovered in this area of cross modal or cross media research. Yet it is clear that as social scientists we will have little grasp of the nature of expressive development in the individual case until we understand these interrelationships.

(D) Socialization

Ultimately of course, having learned how to measure private fantasy, and having watched how it becomes enculturated into public legend (in this case hero narratives and playground games) which we have done in this study in at least a partial way, and having assessed some of the interrelationships between the forms of expression, we seek to know the socialization effects of media, teachers and peers. While this study did not progress far enough to get fully into these latter matters, we did make some steps in this direction.

Below we present two studies of media effect. One by Botvin: The Effect of Media Influence on the Storytelling of First Graders, in which he finds remarkable sex differences in boys' stories are highly influenced by television content and those of girls are not. Again in the earlier article on the Trickster by Abrams, there is included a television study of the effects of Bugs Bunny cartoons on the children's story making. The general conclusion is that at the time (age seven) when this is the children's most preferred cartoon, the cartoon is at a structural level somewhat advanced over that which the children can demonstrate in their own stories. By the time children can show similar plot levels in their own stories (age nine), they are no longer interested in those cartoons. This relationship strongly suggests that a plot modelling effect is being provided by the cartoons, and as in humor research and moral development research, children's preferences are for models on a higher level than the performances of which they themselves are capable. This finding has led us to formulate the relationships discovered in terms of a theory of Initial Education as Caricature, which is presented in the recommendation section of the present report.

In a dissertation study by Amy Miller entitled: Family Play: the relationship between parent behavior and young children's imaginativeness (Columbia Univ., 1974) it was shown that the way in which parents play with their children has a direct effect on the children's creativity as seen independently in the nursery school. In this study Miller videotaped parents and their children playing together with an assortment of toys. Parents were then scored according to their socialization procedures. The children were assessed independently at the nursery school. While there were many results, one outstanding finding was that parents who joined in with the children's improvisations by improvising themselves, as compared with parents who mainly imparted information, had children who were more creative in their own play. This is a striking finding, and as we show in the work on The Dialectics of Play, quite consistent with an increasing body of literature of this sort, because it suggests that parents or teachers directly socialize children's imagination according to the responses they make to it. Those who respond to imagination by being imaginative encourage the development of creativity. Those who respond to imagination by being knowledgeable, decrease creativity.

While these evidences are slight, putting them all together they give some answer to what usually happens to the private fantasies of children when they arrive at school. These fantasies are modelled and encouraged by television and by story plots where these are available, and they are encouraged by a situation where they are asked to make up stories (as we asked them), but where adults do not participate with stories (therefore with improvisation), or call attention to other more realistic aspects of reality (as apparently women tend to more than men), then fantasy and its development is discouraged and other things are substituted for it.

Our major conclusions from this study are as follows:

CONCLUSION

The following conclusions can be drawn from the present study:

(1) It is legitimate to conceptualize the period between four and seven years as one in which there occurs considerable enculturation of the imaginative processes. The structural shifts in children's fantasies which have been demonstrated here, clearly show a gradual approximation to the mythic themes of the larger society.

(2) While the socialization influences which bring this about are undoubtedly multiple, studies reported here indicate that parents have a direct effect, television has a direct effect, and even the storytakers and the instructions they use for taking stories have an effect. What is perhaps more impressive than these individually [illegible] sex-role differentiating effects, however, is the relative homogeneity of the stories told at any given age level when looked at in the present structural terms.

(3) It is legitimate to look at this age period as one of initiation from familial to public fantasies. This more anthropological perspective is a necessary corrective to many years of regarding children's fantasies as private projection of personal experience.

(4) Developmental shifts in structure in both games and stories can be reliably measured. In the present study more extensive work was done in the assessment of stories. This evidence suggests most strongly that other expressive systems (from play to movement) may similarly be susceptible to structural-developmental analysis.

(5) The evidence, if only tenuous as yet, appears to support the view that fantasies are pre-adaptive. That is, the individual first adumbrates new systems of organization in the expressive areas before he tries them out behaviorally.

(6) If it is true that the imaginative processes are pre-adaptive, and if it is also true that they are characterized by recognizeable developmental-structural shifts, then it also follows that there are most considerable educational implications. When the full story of the anthropology of expressive development is available, then it follows there is also available new bases for thinking about school curriculum, as well as new means to assess the development that is occurring in those curriculums.

(7) If children do indeed envisage their development expressively before they apply it adaptively, then this domain of human activity is surely the source of everything else of which either school or child is capable. Its traditional neglect, if this is true, becomes obscurantist even if understandable in terms of the industrial tradition of reducing individuals to fairly routine forms of adaptation.

(8) As the treatment of children makes a considerable difference as to whether they have this capacity for imaginative growth and development, and therefore, autonomous control over their own lives, it follows that teachers should be trained in appropriate forms of response.

(9) At the time of writing this report, a further conclusion is emerging in our data. This conclusion arises from our attempts to understand the way in which the various analyzes provided by Botvin, Mahony and Abrams can be synthesized. In brief what we believe we are finding is that the child's psychosexual stage as measured by Erikson (which in the present case usually means a concern with initiative, industry or identity) can be seen as posing a developmental problem for the individual. To deal with that problem he has at his command various cognitive competences (of the kind described by Mahony). At this point the culture provides him with an array of cultural contents, which allow him to both express and work through that problem. These contents are available in terms of the function described by Botvin and the figures discussed by Abrams. Our first tentative data in this area seems to show that as a child arrives at each psychosexual

stage, he then works through that stage up the Maranda Levels I to III which we have discussed in report number 7 above. If this is confirmed it means that we have largely answered the problem posed by this study. The enculturation of the private imagination occurs because folk phenomena have built in developmental scales, which provide an acting out of the psychosexual problems which are brought to them by children of particular age levels. This means that one of the reasons it is often difficult for psychologists and folklorists to work together is that they do not just interpret the same things differently, but they are also looking at different things. The psychologists deal with the problem at the time it is present in the individual. The folklorists deal with the cultural curriculum for taking that problem and "working it in" to the cultural system of explanation. The implication for a systematic educational system, in which it is possible to spot the psychosexual problem and calibrate the folkmaterials with it is both self-evident and exciting.

RECOMMENDATIONS

1. Given that imaginative development has a lawful and sequential character, then it follows that it is susceptible to further analysis and should properly become a focus of educational concern.

2. Both structure and content can be affected by socialization agents (media, parents, teachers). In the paper that follows (#16), we deal with one way of looking at the task of the teacher who wishes to enter more actively into encouraging the child's imaginative development.

Paper #16. Initial Education as Caricature

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For a number of years I have maintained that a useful way in which developmental psychology can serve education is by tracing out the stages of development through which children proceed in their acquisition of various art forms. (1) I have argued that we have been waylaid from this purpose for many reasons including a work ethic derogation of the arts as well as a discomfort that psychologists feel at their own ignorance of artistic forms. (2) What I wish to do in this paper is to trace for you some of the stages of development through which children proceed in the arts. My faith that such developmental stages do exist in the arts has I think been vindicated in part by our work to date in the areas of improvisation, narrative, aesthetic judgment and film making.

In addition to this, however, I wish to record my attempt to provide at least a preliminary answer to the question of what value such stage descriptions have for education. In the past I have always assumed that the value of these descriptions would be self-evident. Only recently have I realized that I am the one who should assume the burden of showing how that is true. So a second thing I wish to do, besides describing stages in development, is to draw what I think is at least one of the major educational implications of the material that I will present, namely, that initial education is the art of caricature.

Improvisation

Let me begin with the work which I carried out with Gilbert Lazier, a Professor in theatre, now at Florida State University. (3) We asked children to mime various activities for us. These included miming imaginary objects, settings, actions, people and motions. Children between the ages of five and twelve years carried on the activities for us and they were video taped. A similar study was conducted at Tallahasee by Lazier later with substantially the same results. He and I spent many hours viewing the tapes and scoring the differences between the younger children (5-7 years) and the older children (9-11). The younger children reminded us of the keystone cops. They did everything at a faster pace. They covered twice as much territory. But they did it all in a very sketchy undetailed way with broad gestures. If a door was opened in mime it was opened wide enough to let in an army. If an object was picked up from the floor, the child marched over to it, then proceeded to sweep it up with an exaggerated gesture. If money was taken out of the wallet, it was waved out all over the place. If a policeman was encountered, he was reacted to with screaming and flight. Much that we understood was thus writ large. But there were many other things going on also that we did not understand. The events may have been writ large but they were often idiosyncratic with the child, and not always an objectively understandable series of gestures. The older children did many fewer activities in the time given them, but they did them with much more detail so that their gestures were cleaner. They had a better grasp of the nature of mimetic representation as an objective series of signs.

My first conclusion from all this, was that if teachers of theatre were to teach acting and base their teaching on young children's own reactions like ours then with the younger ones of five through seven years, the art of teaching drama would be the art of ham acting. It would be the art of broad mimicry and absurd gesture. Such comics as Laurel and Hardy and The Three Stooges and Abbot and Costello suggest the type of model for children's introduction to acting. Such a recommendation however, would fly in the face of the more subtle advocacies for improvisational techniques of such profoundly important theatre persons as Viola Spolin. Spolin would dispute the need to base teaching on children's own forms of expression. She would base it on the craft of acting itself. This is a crucial issue and I will return to it again later.

Narrative

The best way to indicate what narrative is about is by quoting from some of the many hundred of stories that we have collected from children. (4) The situation is one in which, for the past two years, we have been returning to the same children in Public School #3 in New York and asking them to tell us any stories that they have made up. Here are some examples of stories which deal with villainy, deprivation and the trickster.

A. Villainy

1. This is a story about a jungle. Once upon a time there was a jungle. There were lots of animals, but they weren't very nice. A little girl came into the store. She was scared. Then a crocodile came in. The end. (girl, age five)

2. The boxing world. In the middle of the morning everybody gets up, puts on boxing gloves and fights. One of the guys gets socked in the face and he starts bleeding. A duck comes along and says, "Give up." (boy, age five)

B. Deprivation

3. Once upon a time there was a Martian with a spaceship. He went down to earth. He missed his mother and father a lot. So he said that he wanted to go home. But he couldn't because the temperature wasn't right there. So he went to the country. His mother and father came down to the country and saw him sleeping on a rock. They picked him up and got into the spaceship and they went over and lived happily ever after. (boy, age six)

4. A Story About A Pussy Cat

   There was this old cat. It was wandering around the streets and had nowhere to live. It was pregnant and it had nowhere to stay to have its babies and then it ran into another cat. The other cat said, "There's a burnt-out house where you can go and have your babies." And she said, "Where?" "Down the road and turn left." Two months passed and she had her babies. She died, it was so cold and her babies lived. The babies ran around looking for food. It was wintertime. All the other babies got took by someone else except one little baby. This baby was frozen. She hardly could move. She got in the warmest spot. Someone dropped something out the window and she took it and it made her warm. She got very sick. Someone took her in and made her better. She was a playful kitten. She knocked over so much stuff and they were too poor and no one to give it to so they let it go in the street. It was springtime. She was able to eat again. And she was wandering around looking for a home to stay in. Once in a while she would see another cat and play with it. And sometimes people would hold the little kitten. The kids would ask their mothers if they could keep it but their mothers would say no -- "It's too hard to keep a little kitten." One day this little girl came over. She had one older sister and one little baby sister. She was 10 years old. She asked her mother if she could keep it. Her mother said no. The little girl's name was Lisa. Lisa was gonna be 11 in two days. Her mother did not know what to get for her birthday. She put it in the box and cleaned it and gave it food, went to the pet store and got a cat box and wrapped it. It was Lisa's birthday. She thought it was an empty cat box and was starting to cry but when she opened it she was glad and the little girl took care of it and fed it milk and food and the little kitten lived with Lisa happily ever after. (girl, age ten)

C. Trickster

5. A baby was walking down the street making trouble and when the baby saw a man passing her, she said, "You suck your buggers, two times, yeh, yeh." Then they went to a music studio and they heard, "Keep coming in ABC, ABC, ABC, 1, 2, 3." And then the baby said, "I can do the whole alphabet. ABCDEFGHIJKLMNOPQRS and TUV, W and XYZ. That's how!" And then the baby said, "I spit at you," and then she spitted in the air. Then the baby said, "ABC my bugger!" Then the baby said, "I think I'm so smart just because I have one tooth out." Then the baby said, "I am superman, you can't hurt superman." Then the man said, "You're messing up the whole music studio. Kick the baby out." Then another baby said, "I never saw a baby with a moistache," while putting his fingers on his nose. Then he said, "Me Chinese, me tell joke, me go peepee in your coke." And then the baby that was getting kicked out said, "You're not Chinese, you're American."

   Then they saw 3 ladies kicking their legs up and saying, "Legs, legs, legs are here!" Then the girl said, "I shave my eyelashes everyday." And then the baby said, "I think I'm so great because my teeth don't need to be fixed!" Then the baby walked into an A & P Wee-O store and everyone was saying, "Wee-O!"

   Then the baby said, "It passed my bed-time, I better find my way home." Then he accidently walked into a museum while the guard was asleep, and he climbed up a plastic tree and there was a rope hanging on it and he said, "Me Tarzan!" Then the baby swinged out the window and about a mile and landed through the chimney into his house and said, "Me Santa Claus." And then he climbed into bed and went to sleep. That's the end. (boy, age seven)

The first two kinds of tales, those of villainy and deprivation, show a regular sequence of developmental stages from ages five through eleven years. At the lowest level, there is merely a statement of threat or deprivation (Stories #1 and #2); at the next level there is flight or some unsuccessful attempt to remove the threat or deprivation (Story #3); at the next level, the threat is overcome or the deprivation removed (Story #4); and at the final level the threat or deprivation is not only nullified, but the hero transforms the nature of the situation so that no subsequent threat can re-emerge (as in hero mythology). Looked at in this way, a clear cut set of developmental stages emerge from these stories. Educationally, this means that when teachers let children tell their own tales over time development can take place. But more importantly, from the perspective of the present article, the first stage has a gross and unbelievable character that is hard for an adult to understand. The idea of passively letting these events happen is more like something that occurs in a dream than what an adult would expect to happen in a story. Our studies indicate that there is not much difference between the dreams that children tell at this age and stories they tell. (5) What seems to be occuring is that one aspect of a complete story, the most frightening aspect, that of villainy or deprivation, is separated out and dealt with just by itself in all its catastrophic reality. The story teller is like the individual frozen immobile by fear, except perhaps that, as the teller, he is active in relationship to that fear. In all the stories that children hear and that they see in cartoons, the central characters often begin by experiencing these traumas, but in the end they escape or are made safe or they triumph. Stories children hear often include all of the four stages mentioned above. What then does it mean that children begin their own narrative lives by telling only these parts of the stories? Why do they tell such caricatures of death, massacre, disintegration, and dismemberment. And what should we do about it?

The problem is made clearer in the Trickster Tales. These are tales in which the central character fluctuates between regressive and progressive behavior usually with considerable involvement in the pleasures which most adults would regard as obscene. These are only a minority of the tales that we collected. Obviously they are told by children only under highly supportive conditions. There is not in these tales any obvious pattern of development over the children's age levels as there is in the tales of threat and deprivation. This may be because the adult society so clearly structures the narrative outcomes for tales of threat and deprivation, but does not do the more open preoccupation with oral, anal and sexual impulses in the trickster tales. There are few models for children to follow in this latter area and they are not generally told the types of tales that deal with these matters, for example, the Winnebago trickster tales in American Indian Folklore. There may nevertheless be some pattern of development across these trickster tales, perhaps a developmental shift from oral to anal to genital interest or some such other shift that has eluded our data collecting technique, but has been shown to exist in American Indian versions. (6)

As in the case of other tales, however, what is one to advocate about the teaching of such tales? If one follows the example from the data on improvisation, then one might again recommend that one follow the children's lead and provide narrative models that are similar to the children's own forms of expression but at a slightly higher level so that they can develop beyond the position that they have already obtained. This is perhaps the "logical" conclusion to be reached. Children at stage 1 threat should be told stories at stage 2. My student David Abrams has shown that when children's television cartoon favorites are analysed in this way, their favorites, such as "Bugs Bunny," are usually one or two stages above their own level of competence. What they most appreciate is a little ahead of what they can perform. Still, how is this principle to be applied to trickster tales? Are we to teach anal tales to children at the oral stage and genital tales to children at the anal stage? This may be a "logical" conclusion but it is certainly not a prudential one.

Aesthetic Judgment

Viola Spolin felt that it was better to emphasize technique than to allow children to "express themselves" freely in improvisation classes. (7) She argued that if they were allowed their own head, children would give vent to endless aggression without and would not learn the importance of techniques. Those who have dealt with children in action theatre and in psychodrama, however, and who have been able to weather these early cathartic stages while continually calling attention to the technique of expression regardless of content, claim that despite an initial period of acted out violence and obscenity, there is also an evolution of discipline and technique. Perhaps some clarity is cast on this matter by a dissertation study of one of our students, Cornelia Brunner, who presented children with pairs of famous paintings and asked them to choose the one they liked most and explain why. Younger children justified their choices on the grounds that their chosen picture was the way things really were. Slightly older children (9-10 years) justified their choices on moral grounds. They said that their chosen picture showed the way that things ought to be. It was only in early adolescence that children began to make choices of a structural or technical sort, that is, to justify their picture on the basis of its color, its light, its shape, etc.(8)

Perhaps this gives us a clue to the Spolin-Psychodrama conflict to which I have alluded above. By and large Spolin dealt with children who were volunteers and therefore more talented than usual, and most probably capable of understanding a more technical approach to the subject matter of improvisation. Whereas those who have worked in an urban situation have begun with children at a zero level in aesthetic development, and have found it necessary to grapple first with what the children have felt was most "real" for them. "Most real" has meant violence, obscenity, drugs and so on. Not strangely, in the films that children of urban neighborhoods wish to make, we also find that their most common subject is violence and currently, their most common hero is Kungfu. Which is to say that part of the above argument over educational approach may derive from the developmental level of the children with which the educator is used to operating. In drama, at least, there are some people courageous enough to work with what the children feel is most real in their lives. Whether there are people equally courageous in the area of trickster narrative is something else again.

Films that Children Make

Our project on films is currently underway and I can, therefore, only give you some tentative observations.(9) I want, in particular, to call attention to some of the difficulties that children have in making their first films. Their difficulties tend to highlight some of the matters already dealt with. When they have made their first film many children have a great difficulty in accepting the idea that they should edit or cut any of it out. To cut some of it out they feel is to change the way things really are. After all, that was the way it was when they made the film. To take something out would be dishonest. Here we have a confusion between everyday reality and filmic reality to the disadvantage of the latter. Stage one aesthetic "Realism" dominates perception. Another peculiar feature of the first film maker, is that when he is out with his camera, he often just pushes the button and expects the perfect film to be taken. He does not realize that as a photographer, he must be an active performer. Implicitly he is treating himself as a member of the audience for his future film. He has not differentiated out the active role of the photographer.(10) In both of these "errors" of the early film maker, we notice a passivity with respect to essential events. It seems to be assumed that the events that take place out there will occur regardless of his particular actions.

When children do make their first films, their focus of attention is selective and their grasp of film making is indicated by the things which they exaggerate. There is, for example, an almost total focus on actions, such as fighting and chasing and upon the agencies, such as guns through which these are carried out. There is little equivalent regard for situation, character, emotion or purpose. We often do not know why the characters are there, who they are or what they feel. It is often difficult to tell what is going on because these other elements are not carefully delineated. As in the case of the improvisational study cited above, characters rush about in a Keystone fashion but few details are given and we often have a difficult time understanding what is happening. Often one action follows another with no great logical relationship between them. This is true even of the first films made by 13 year olds. Here, as in other areas of development, the acquisition of a technical competence may be achieved by sacrificing the developmental level of content. Many of the film stories even by these older children are at the one or two level of narrative described above. Perhaps one has to grow up again in a new medium.

A Perceptual-Cognitive Interpretation

A well-known interpretation of phenomena of this sort is that the younger child is field dependent. He has difficulty in abstracting himself from the context in which he is placed. All things are equally real. The hidden face cannot be discovered within the larger picture. The hidden object cannot be found behind a more interesting object in front of it. One way of looking at child development, therefore, is to regard it as a gradual differentiation of the variety that the world naturally contains. Step by step the child learns to pay attention to the details that lie behind the more obvious aspects of what he at first perceives. In thought also he is able gradually to discover that a pound of feathers is no different from a pound of butter, althought it is the heaviness of butter that first attracts his attention and makes him think it must be heavier than an equal weight of a usually light substance. Our first assumption then is that *development proceeds by differentiation*.(11)

A Corollary of his original lack of differentiation is that a child, when asked to comment on what he does see or does understand, tends to pay attention to those stimuli that are the most intense, the most recent, or those that have been the most important to him, irrespective of the objective role that they are playing out there. For example, when George Rand asked children to draw a picture of themselves looking for a lost coin in the grass, this made some seven year old children think of lostness and they drew mainly grass. Others thought of the coin's value, and they drew an enormous coin. Yet others concentrated on the weeping of the children, while others focused on their searching. Older children tended to include most or all of these various aspects of the situation in their drawings. Rand's studies of children's perception, as distinct from their representation, showed a similar tendency for them to single out particular aspects of presented materials to which they reacted one at a time.(12) Their attention was again guided by salient or obvious features even though these may have been misleading as cues tp what was going on in general. Our second assumption, therefore, is that children's *attention is drawn selectively to salient features of the perceptual field*. The examples given make it apparent that this selectivity is sometimes based on features generally discriminable in that external field and sometimes on features relevant only within the subjective life of the observer.

What our own examples seem to show is that as a result of focusing on what is most important to them, children intensify their particular focus in proportion to the rest of the field. The focus becomes an exaggerated figure and the rest of the perceptual field becomes the ground. Piaget has defined the process of perceptual "centration" in just this manner.(13) Centering one's attention tends to distort one's perspective. Over time, Piaget suggests, the child oscillates from one aspect of the perceptual field to another, exaggerating each in turn, until they all finally fall into a more adult perspective. Perhaps what occurs here is a preliminary exaggeration that is necessary in order to differentiate the figure from the ground. The very focus and the exaggeration of the subject matter may be necessary for differentiation to occur. Without it perceptual differentiation may not take place. A next assumption would be therefore that *differentiation takes* *place by virtue of an exaggeration of the point of focus or point of representation within the perceptual field.*

If exaggeration is the technique adopted by children both in perceptual development and in the development of representation, this raises the question of whether we should not use the same technique in our initial education of children. In a sense we already do this. There are many experiments in which children's discrimination has been heightened by making a perceptual array more intense or more salient than it was prior to the experiment. We make large jig saw puzzles for the very young with clearly marked edge patterns so that they can discriminate the pieces. We read them passages with marked intonation so they can remember them more easily.(14) If we show them cartoons they can recognize the characters and events more easily than if we show them real life pictures of the same subjects.(15) The principle is that in general young children need more easily discriminable information about the stimuli if they are to discriminate and remember them.

So if children's own first representations are exaggerated and if well-established techniques of enhancing discrimination in sober matters also requires exaggeration, it may be assumed that initial education should involve caricature.

Caricature and Grotesquerie

Some investigators would probably prefer the term exaggeration or stimulus information overload to describe the present issue. I prefer the term caricature because it draws attention not only to a developmental process in children but also to a reaction on the part of adults. Actually what is being discussed here is not necessarily a caricature in the eyes of the children. For the child his reaction is the way things seem to be when he first pays attention to them. But from the point of view of the adult or advanced person, the behavior has a regressive and oversimplified quality to it and he reacts as if it is a caricature. It may seem funny or even grotesque. This reaction is particularly important because it helps to explain why we have not made more use of caricature ourselves in children's education. Although we may have been able to learn how to teach arithmetic by proceeding from the simple to the complex, we have not found it so easy to learn how to teach the arts or other subjects by proceeding from the gross to the refined. Part of the success of the key vocabulary of Sylvia Ashton-Warner in her approach to the teaching of reading was that she began teaching the words the children really wanted to learn, often gross and unrefined. Although we are mainly talking about the arts in this paper, the thesis has more general application.

So if one argues that initial education should be caricatural he is immediately confronted with the problem that most of us, American Gothic adults, find such caricatures to be grotesque. They may be cute in children, but they are hardly dignified in ourselves. Would you really want to do your own blackboard drawings for children at schematic age two; would you really want to encourage your nine year old to do morality plays? Is it preferable to tell stories to five year olds that hinge only on escape and rescue? Should one attempt to be a Bud Abbot in the second grade classroom. Strangely, we have accepted this principle when it comes to playing with children. We know that we must clown with babies to get them involved in interactive games, and that we must play choo choo with four year olds to seduce them into imaginative behavior.(16) But in the ordinary classroom must we do these things? I would think that the logic of the present arguments along with the evidence of a Piaget and the strivings of a Kohlberg to generate a plus one moral response, do indeed add up to the necessity of a capacity for caricature in initial education. Of course it is an empirical question how often we should model only a plus one possibility (that is, one stage above the child's present state). Undoubtedly, a sprinkling of plys twos and plus threes are in order. And there are some media such as Bugs Bunny and the Fifth Symphony which contain the whole range in the same presentation. But I think if one accepts a stage theory for all types of development, and the view that children develop largely as a result of perceiving models at slightly higher levels which they can readily assimilate, then an approach to education through caricature is in order.

In addition, the notion that we should educate teachers in the arts of caricature has some profound implications for teacher training and perhaps even for human growth. One has to be less gothic and a bit grotesque to be able to skip about the developmental levels providing the necessary models that are assimilable by children at different age levels. The refined names for this capacity are "flexibility" and even "motility of operations." (17) One might assume that being trained to be so flexible would be a form of training that kept one in touch with one's own childhood. And this in turn might have some of the regenerative implications that Erikson seemed to imply in his notion of the mature adult. (18) It is, after all, possible to consider that personal repressions and the obliviscence for childhood have been a product of both industrialization and modern science. The need for routine responsibility and formal operations in Western Society have led as we know to a general derogation of the early years. Our increasing concern for children in this century implies that this particular repressive nature ("American Gothic") may not now be the one that is most suitable in the future. The art of caricature in these terms may well be not only a step in the initial education of the child, but a step towards the rediscovery of a newer and more mobile human nature.

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"Anthropology of Play" Annual Meeting of the American Anthropological Association, New Orleans, December, 1973

"Play, Games and Sports" World Conference in Health Physical Education and Recreation, British Commonwealth Games, Christchurch, New Zealand, January, 1974.

"The Developmental Psychology of the Arts" and "The Role of Play in Children's Learning" were two lectures given as part of the McKenzie Travelling Lectureship in Education sponsored by the New Zealand Council of Educational Research. These lectures and seminars were given during February- March, 1974, to Universities, Teachers Colleges, and Teachers Groups in the towns of Invercargill, Dunedin, Timaru, Christchurch, Wellington, Palmerston North, New Plymouth, Napier, Hastings, Hamilton, Auckland, Whangarei. The lectures were given at the Universities of Otago, Christchurch, Lincoln, Waikato, Wellington, Palmerston North, Auckland, and the university of the South Pacific in Fiji.

"The Role of Play in Informal Education" A lecture given on behalf of the Inner London Education Authority at Avery Hill, St. Marys and Nonington Teachers Colleges, the Sir William Houghton Teachers Centre and the Institute of Education, Malet St., March, 1974

"The Function of Play" at a Conference on Physical Education and Sport in the Developing Pattern of Leisure, University of Liverpool, March, 1974

"A New Ideology for Play" at the Biennial Conference of the Universities' Physical Education Association, April, 1974

"The Comparative Study of Play, Games and Sports" Colloquia, University of Tubingen, Germany, April, 1974

"Play in Industrail Society" The Sociology of the Theory of Sport, International Sociology Meeting, Toronto, August, 1974

"Discussant -- New Research in Play" American Psychological Association. New Orleans, September, 1974

"Developmental Approaches to the Arts," Colloquim, Yale, October, 1974

"The Development of Narrative Plot" The American Folklore Society, November, 1974

"Play as Novelty" Parent Child Nurseries, Flint, Michigan, November,1974

"Play as Novelty" Annual Meeting of N.A.E.Y.C. Washington, D.C. November,1974

"Play" -- a two day symposium to Royal Canadian Commission on future policy in play and leisure. University of British Columbia, Vancouver, February,1975

"The Priority of Play" Chicago Association for the Education of Young Children, February, 1975

"Structure in Play" The Erikson Institute, Chicago, February 1975

"Play" Childhood Education Federation, Texas, March, 1975

"Research on Play" Colloquim, Ohio State Dept. of Education, March, 1975

"Research in Play" Colloquim, Graduate Centre, City University, New York, March, 1975

"The Study of Games" Fourth World Conference of HISPA, invited opening speaker, Louvain, Belgium, April, 1975

"Play as Innovation Training" Annual Educational Address, Pacific Oaks College, Pasadena, April, 1975

"Play" Address, Mercy College, Hudson Valley, New York, April, 1975

"Current Research in Play" Annual Meeting for the Association for the Care of Children in Hospital, Boston, May, 1975

"Children and Playground" Symposium, Children, Nature and the Urban Environment. George Washington University, May, 1975

"Child Development through the Arts" American Council for the Arts in Education, September, 1975

"A Structural Theory of Play" Games and Sports. International Sociology of Sports Conference, Heidelberg, October, 1975

"Psychology of Children's Play" The American Academy of Psychoanalysis. Winter Meeting, December, 1975

"Play, Games and Sports." Seminar at East-West Cultural Center for authors in Cross-Cultural Handbook, January, 1976

"Initial Education as Caricature." Public Address, Stanford University School of Education. January, 1975

"Initial Education as Caricature." School of Education, University of Wisconsin, March, 1976

"The Dialectics of Play" The Society for the Anthropological Study of Play, Atlanta, March, 1976

"Narrative Development." The Institute for Cognitive Studies, Rutgers University, April, 1976

"Informal Education" Symposium Discussant. The American Association for Educational Research, San Francisco, April, 1976

"The Future of Children." International Design Conference, Aspen, Colorado, June, 1976

"Play, Games and Festivals" Olympic Congress on Physical Activity, Quebec, July, 1976

"Games in culture" A seminar, University of Tubingen, Germany, May-July, 1976.